The Air War in Vietnam
1968 - 1969 (U)

HQ PACAF
Directorate, Tactical Evaluation
CHECO Division

Southeast Asia, showing Tactical Zones for I, II, III, and IV Corps

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Project CHECO 7th AF, DOAC
The Air War in Vietnam
1968 - 1969 (U)

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The counterinsurgency and unconventional warfare environment of Southeast Asia has resulted in USAF airpower being employed to meet a multitude of requirements. These varied applications have involved the full spectrum of USAF aerospace vehicles, support equipment, and manpower. As a result, operational data and experiences have accumulated which should be collected, documented, and analyzed for current and future impact upon USAF policies, concepts, and doctrine.

Fortunately, the value of collecting and documenting our SEA experiences was recognized at an early date. In 1962, Hq USAF directed CINCPACAF to establish an activity which would provide timely and analytical studies of USAF combat operations in SEA and would be primarily responsive to Air Staff requirements and direction.

Project CHECO, an acronym for Contemporary Historical Examination of Current Operations, was established to meet the Air Staff directive. Based on the policy guidance of the Office of Air Force History and managed by Hq PACAF, with elements in Southeast Asia, Project CHECO provides a scholarly "on-going" historical examination, documentation, and reporting on USAF policies, concepts, and doctrine in PACOM. This CHECO report is part of the overall documentation and examination which is being accomplished. It is an authentic source for an assessment of the effectiveness of USAF airpower in PACOM when used in proper context. The reader must view the study in relation to the events and circumstances at the time of its preparation—recognizing that it was prepared on a contemporary basis which restricted perspective and that the author's research was limited to records available within his local headquarters area.

Robert E. Hiller
Chief, Operations Analysis
DCS/Plans and Operations
FOREWORD

The character of the U.S. military effort in Vietnam and the role of airpower in support of that effort changed markedly between January 1968—when the enemy launched his greatest offensive of the war—and December 1969, when the pace of the war had slowed appreciably. The enemy had suffered a major defeat in his early 1968 offensive; U.S. bombing of North Vietnam had been halted; and peace negotiations were begun in Paris. The out-country air effort shifted to strike against enemy infiltration routes in Southern Laos and support of Royal Lao Forces in Northern Laos. The U.S. and Allied ground forces in the Republic of Vietnam (RVN) operated under a strategy emphasizing reconnaissance and undercutting the enemy infrastructure. The combination of air interdiction in Laos and ground and air attrition of the enemy logistics base and infrastructure in RVN gradually eroded the enemy's capabilities, allowing the RVN political and military establishments to expand control of the countryside and take a greater role in combat.

This CHECO Report documents the role of airpower in this critical period of the war. It describes the various elements of the USAF air capability and how they were employed in support of United States strategy in Vietnam.
CHAPTER I
OVERVIEW

At the beginning of 1968, fighting in Vietnam was at its fiercest. The forces of the North Vietnamese Army (NVA) and the Viet Cong (VC) were at their high point of effectiveness. Main Force and Local Force units with their supporting elements—porters, guides, communications, intelligence, supply caches—were primed to support large-scale operations. Mass attacks on the outpost of Khe Sanh in the northwest corner of the Republic of Vietnam (RVN) began in January, and in February, the enemy, in his largest onslaught of the war, was battling in the streets of Saigon, Hue, and practically every major city in Vietnam. The enemy was beaten down, but the results of the offensive were to change the whole character of the U.S. commitment and the nature of the war itself.

Against the backdrop of a halt in the bombing of North Vietnam (NVN), negotiations in Paris began, large search and destroy operations gave way to attacks on the enemy infrastructure, and the interdiction program against enemy movement on the Ho Chi Minh Trail in Laos was stepped up. The air effort shifted from an allocation of 70 percent of the sorties in-country and 30 percent out-country to 55 percent out-country and 45 percent in-country. By the end of 1969, the war was in the sixth month of its longest lull. The U.S. had begun withdrawing its forces, a program for Vietnamization of the war had started, the Republic of Vietnam was expanding its influence in the countryside, and U.S. casualties were
Airpower played a critical role in the events between January 1968 and December 1969, a period of significance in which strategy and goals of both sides changed considerably. In the enemy's February, May, and August offensives of 1968, the firepower available in tac air and B-52 strikes was directed against massed enemy assaults where airpower could be used most efficiently. According to Gen. George S. Brown, Commander, Seventh Air Force, "Khe Sanh and the Tet Offensive were the beginning of the end for the communists in their military operations in RVN." The hammering down of these offensives by combined ground and air action, coupled with the success of the air interdiction program in the southern part of North Vietnam (Route Package I), rendered the majority of North Vietnamese Army units ineffective and created the security conditions in Vietnam in late 1968 which allowed Gen. Creighton W. Abrams, Jr., Commander, U.S. Military Assistance Command, Vietnam (COMUSMACV), to institute a new strategy. This called for an "accelerated pacification program" which essentially focused friendly effort on attacks against the enemy's infrastructure to destroy the VC guerrilla base on which the NVA depended so heavily. According to General Abrams, the successive weakening of the enemy offensive capability in late 1968 and all of 1969 was due to the success of the Accelerated Pacification Program, in which tactical air and B-52s played an important role in RVN.
After the complete halt of bombing in NVN on 1 November 1968, the main weight of the out-country air effort was directed against the Ho Chi Minh Trail in Laos (COMMANDO HUNT I). General Abrams credited the success of COMMANDO HUNT with preventing the enemy from meeting his objectives in the rainy season of 1969 when the war entered its longest lull. He also cited tac air and B-52s, which provided the "biggest weight of firepower," as of great importance to the in-country war in terms of creating heavy enemy casualties and minimizing friendly losses. This combination of an interdiction effort in Laos with highly potent air support of pacification goals in Vietnam was believed by General Abrams to be critical to the successful meeting of U.S. objectives—even more than the decisive defeats handed the enemy when he emerged into the open en masse during the early 1968 offensives. There were day-by-day attacks on the logistical-communications base of the enemy, normally called his infrastructure. Such measures as air attacks, increased police activity, small unit ambushes, population control measures, and greater use of RVN Local Forces in village pacification and security replaced the strategy of employing division-sized U.S. and RVN forces in large-scale search and destroy operations. The results of this change of strategy, which began in mid-1968, were clearly evident at the end of 1969. RVN control of the countryside was greater than ever and enemy initiatives were on the decline, allowing the U.S. to begin a withdrawal by transferring more and more of the fighting to the Republic of Vietnam.
Armed Forces (RVNAF).

There were several major developments which, in the view of COMUSMACV, permitted airpower to function more efficiently than ever in support of overall objectives. Of considerable importance was the institution of the MACV Single Manager for Air in March 1968. According to General Abrams, centralized management of the air effort enabled him personally to conduct operations more efficiently:

"...From my level, power can be moved with ease in the area which includes BARREL ROLL /Northern Laos/, STEEL TIGER /The Lao panhandle/, and South Vietnam. Wherever the enemy puts the heat on, whether it's the Plain of Jars or Duc Lap, it's only a matter of hours before tremendous shifts of power can be made...with no long warning to the enemy. The centralized control of the application of power is critical to the efficient use of power...."

Another important element which led to improved use of the air capability, according to General Abrams, was the combination of an integrated all-source intelligence system for better targeting and an integrated all-resource reaction to this intelligence:

"...Over a two-year period, all-source targeting has been steadily and dramatically improved. Our goal is "steel on the target" and that takes good targeting. In the Air Force, this is especially important in the interdiction program.

"...Also, you must have an integrated, all-resource reaction to this intelligence, including tac air, B-52s, and gunships. These must be organized to strike so that all of them can be applied and integrated. If so, it will provide a terrifying and powerful blow to the enemy over a
short period of time. This aspect of our operations has improved significantly.

"The air is a really powerful weapon. To use this power effectively, you need both integrated all-source intelligence and an integrated all-resource reaction..."

The improvement cited by COMUSMACV in the all-source intelligence system meant that the tremendous firepower provided by the Air Force could be more damaging to an enemy who used camouflage, cover, and dispersion with great skill. During 1968 and 1969, the number of strike sorties was at an all-time high, reaching a peak of 37,000 throughout Southeast Asia in July 1969. Since February 1965, when the U.S. committed its jet aircraft to in-country bombing and started bombing North Vietnam, more than 1,345,000 strike sorties were flown by 7AF, U.S. Navy, U.S. Marine Corps, and SAC aircraft, dropping more than three and a half million tons of bombs. The cumulative impact of this air effort, particularly in 1968 and 1969 when targeting was improved, created a severely inhibited environment for the enemy, forcing him to make greater use of sanctuary camps outside RVN and to change his tactics. To move from the border camps toward objectives in RVN, he had to run the air gauntlet; if he massed his forces around Special Forces Camps or other friendly targets, he made a prime target for airstrikes. Within Vietnam, the VC guerrilla infrastructure—on which he depended for preparation of the battlefield by recruiting porters, pre-stocking caches, preparing bunkers, and evacuating the wounded and dead—was weakened. The enemy faced a major dilemma.
To achieve significant military results, he had to mass and move through exposed areas where he was vulnerable to attacks by heavy firepower, including airstrikes. On the other hand, his inactivity allowed for persistent ground and air attacks upon his VC guerrilla support structure.

Another key element in the air support of COMUSMACV's strategy in 1969 was the USAF reconnaissance effort, both photo reconnaissance and visual reconnaissance (VR), particularly the VR role of the USAF Forward Air Controllers (FACs) in Southeast Asia. General Abrams recognized the need for photo reconnaissance in the total intelligence effort. With its black and white coverage, plus color, camouflage photos, and infrared (IR), it provided an input which could not be obtained elsewhere. Generals Abrams and Brown had high praise for the FACs who flew many types of aircraft on visual reconnaissance, from the tiny O-1 Bird Dog to the powerful F-4 Phantom—depending upon the environment. General Abrams particularly noted the FAC's great importance in operations on the borders of Laos and Cambodia: "In these border areas, you're not in the ball game unless a FAC is there." He further stated:

"...He makes sure you're doing what is authorized and not guessing. He takes the guesswork out of the operation. The FACs have made a real contribution because they are seasoned professionals. FACs don't get lost...."

Also critical to success of the new strategy, begun in the fall of 1968, was the role of USAF airlift, ranging from the long-range airlift
of the Military Airlift Command (MAC), which carried high value cargo, passengers, and hospitalized patients, to the short run tactical airlift by C-130s, C-123s, and C-7s. General Abrams cited movement of the 1st Air Cavlary Division from I Corps to Northern III Corps in late October 1968. The decision to transport this unit was made at 1730 hours on a Saturday, with plans calling for the move to start on the following Monday and be completed in 15 days. By Monday afternoon, the first units of the 1st Air Cav to be moved were in contact with the enemy in III Corps, and the rest of the move was completed on time. Considering that the 1st Air Cav with its 400 plus helicopters was a heavily equipped unit, this move demonstrated the efficiency of USAF combat airlift. Airlift was also essential to maintenance of the Civilian Irregular Defenses Group (CIDG) camps strung across the length of Vietnam, being capable of airlanding troops and supplies and, where this was not possible, employing airdrops.

The importance attached to the USAF airlift was reflected in the strong objections raised by MACV when Seventh Air Force tried to reduce it. The number of C-130s used in SEA steadily declined by a third from mid-1968 to the end of 1969, when some 55 of these versatile aircraft were being used. Improved efficiency in control, as well as the reduced U.S. ground force commitment, made this reduction possible; further cutbacks were planned as the U.S. withdrew more ground forces. However, General Brown, as well as General Abrams, recognized that the airlift
capability was "absolutely essential" to the support of U.S. forces in advanced positions and to the movement of people and supplies.

Major political decisions made in 1968 and 1969 influenced the role of airpower in support of U.S. strategy in Southeast Asia. Of prime importance were the partial bombing halt of 1 April 1968, which moved the locus of the air interdiction effort southward into the lower part of North Vietnam (Route Package I), and the total halt of 1 November, which brought the effort even farther south into the Laos panhandle.

After the initial bombing halt, a concentrated interdiction program was conducted against enemy lines of communications (LOCs) in Route Package I between July and October, which successfully stopped the enemy from moving into RVN. After the total bombing halt on 1 November 1968, COMMANDO HUNT I, a dry season interdiction program in Laos, using IC-00 WHITE sensor technology, followed up the success of the Route Package I Program. The interdiction inhibited enemy movement through Laos, limiting throughput to less than 20 percent of the input into the system. This latter success was due to effects of monsoon weather on the Laotian LOCs and to the earlier bombing of North Vietnam, because the enemy had not been able to pre-position supplies and trucks in the north for the move south when the roads dried. However, in preparation for the 1969-1970 dry season, the enemy freed from air attacks in North Vietnam for a year, was able to get a head start, moving his supplies, trucks, and fuel storage areas to the border in readiness for the move south through
Laos. This advantage, linked with improved antiaircraft defenses, an enlarged road system, fuel pipelines from NVN to Laos, and the necessary diversion of available strike sorties to counter heightened enemy activity in northern Laos made the friendly situation less favorable than in the previous dry season. Enemy infiltration through Cambodia into III and IV Corps in 1969 was relatively uninhibited until supplies and men crossed the border into Vietnam, and an increased NVN presence in IV Corps at the end of the year reflected this advantage held by the enemy.

Despite the advantages provided to the enemy by the cessation of bombing in North Vietnam and his relative freedom to use Cambodia and Laos as a sanctuary free from ground attack, his military situation was gradually eroding from his "high point" of February 1968. Both General Abrams and General Brown recognized the importance of a combined air-ground effort to the continuing deterioration of the enemy situation. The constant pressure placed by air on enemy infiltration efforts and the forced attrition of those men and supplies which got through were essential to Allied success. While the interdiction of infiltration routes was primarily an air function, the attrition of enemy resources in RVN was a joint air-ground operation. This attrition was most successful when ground forces, operating on long-range reconnaissance missions, located enemy caches and flushed out enemy soldiers, making them more vulnerable to air-strikes. This success was clearly demonstrated in the A Shau Valley campaigns of early 1969 where U.S. and ARVN units, supported by airpower,
were unearthing approximately ten tons of enemy materiel daily—materiel which had survived the interdiction effort. The air and ground efforts were very closely related. Air attacks could not substitute for ground operations in getting at the enemy infrastructure and his caches.

The reduction of the U.S. ground effort toward the end of 1969 and early 1970, such as in the A Shau Valley campaigns, was a source of concern to General Brown. Interdiction to be most successful was a two-ended task involving both air and ground operations. The enemy, forced by airstrikes to move his supplies inside RVN by porters and bicycles, had begun building stockpile caches. The reduction of U.S. ground strength in Vietnam was quite obviously something which could work to the detriment of the in-country part of this task.

The problem which this detriment would present to the U.S. policy for withdrawal from the Vietnam conflict through Vietnamization was pointed out by General Brown:

"...We will have improved the Vietnamese armed forces but their capability will be considerably less than what we have today. Therefore, our task is to trim the security problem to a size that the Vietnamese can handle. In the time we have left, however long that is, we must make pacification work...We're making some progress. Communist recruiting is falling off. As their main forces are being pushed back into the jungle and across the borders, the police and ARVN come in to take a firmer hold."

Thus, at the end of 1969, it was clear that the course of events in the future would be greatly influenced by political considerations. The
enemy had been thwarted by military force from his goals. In the process of withdrawing its armed forces and building up those of the Vietnamese, the U.S. hoped that it could do so without upsetting the still fragile, yet steadily growing control of the country by the Government of Vietnam (GVN).
CHAPTER II
POSTURE AND GOALS

The military strategy of the United States in Vietnam was to seek out and destroy Communist forces and infrastructure by expanded, offensive military operations and to assist the Government of Vietnam in building an independent, viable nation. The strategy outside the Republic of Vietnam in this period was to take the war to the enemy in Laos and North Vietnam by selective application of U.S. air and naval power to reduce the capability of Hanoi to support military operations in South Vietnam. Major military and political developments in 1968 and 1969 resulted in several changes in goals supporting this strategy. In South Vietnam, the goal of enhancing effectiveness of the Republic of Vietnam Armed Forces was elevated to highest priority on the Commander-in-Chief, Pacific Command (CINCPAC) listing of goals. The bombing halts of 1968 in North Vietnam changed the goals for the out-country effort, limiting the out-country air war to Laos. The specific goals for the air war in 1969 paralleled those of CINCPAC. These were to:

1. Organize, equip, modernize, and employ the VNAF to achieve a maximum state of combat effectiveness.

2. Inflict more losses on the enemy than he can replace.

3. Assist in increasing the percentage of the population and territory under GVN control through an expanded pacification effort.

4. Reduce the ability of the enemy to conduct ground
attacks or attacks by fire against population centers, economic areas, and bases.

- Deny the maximum number of base area sanctuaries in RVN to the enemy by their destruction or continual neutralization.
- Assist in restoring and serving to the greatest extent possible the road, railroad, and waterway LOCs.
- Assist in neutralizing the enemy infrastructure in all pacification priority areas.
- Coordinate intelligence collection and counterintelligence activities to the maximum extent possible.

Seventh Air Force tasks to accomplish these objectives encompassed air defense, close air support, tactical airlift, interdiction, maintenance of air supremacy, reconnaissance, targeting, intelligence, air-sea rescue, civic action, psychological operations, VNAF assistance and enhancement, and herbicide operations.

The fundamental enemy objective in RVN was the "creation of a politico-military climate conducive to the establishment of a Communist government." Military force was the primary means of achieving that goal. VC and NVA tactics consisted mainly of general harassment, terrorism, sabotage, psychological warfare, interdiction, and small-scale attacks on isolated camps and villages. But the 1968 Tet offensive was a massive departure from these tactics as the enemy made a major bid for a quick victory by striking with massed forces throughout the Republic of Vietnam. Enemy planning called for the continued maintenance of a
credible large-scale threat in order to provide the greatest possible latitude in the conduct of offensive operations.

A major innovation in the control of air operations occurred in March 1968 when the battle for Khe Sanh dramatically revealed the lack of single management for the application of airpower. Acting on COMUSMACV's proposal, CINCPAC approved the Single Management System (SMS), and it was established on 8 March 1968. Under the system, the Deputy COMUSMACV Operations for Air (Comdr, 7AF) integrated the planning, coordination, and control of all in-country air resources, including those of the U.S. Marine Corps (USMC) and U.S. Navy (USN). For the first time, the air war could be viewed, pursued, and coherently coordinated from a single vantage point. The unifying element was the Tactical Air Control System (TACS), where the "operational direction" prerogative gave 7AF authority to issue frag orders, order scrambles, divert aircraft, and direct engagement of air or ground targets (Fig. 3).

While in-country air operations were managed through the 7AF Tactical Air Control Center (TACC), all out-country air operations were managed through BLUE CHIP, the Seventh Air Force Control Center (7AFCC). BLUE CHIP controlled air operations over NVN, air support of Royal Lao Government (RLG) forces in northern Laos, and the air interdiction campaign against the NVN LOCs through southern Laos into RVN. Seventh Air Force had operational control of U.S. strike forces in Thailand as well as in RVN. Before flying into Laos, USN and USMC strikes were coordinated with
The upper illustration depicts the operational elements of the TACS while the lower figure shows their location in SVN. The TACS permits command to shift, redeploy and concentrate its force to fit most pressing requirements. Coordination between air and ground forces is built into the TACS providing maximum flexibility for air support.

Figure 3
7AF. In effect, the operational control arrangements for the out-country air approximated the Single Management System used in South Vietnam.

The magnitude of the management of airpower expanded with the steadily growing commitment. In 1964, the USAF had 230 aircraft in SEA. By 1967, that figure had increased to approximately 1,350. Army aviation greatly expanded during the period reaching more than 2,000 aircraft, mostly Bell UH-1 helicopters. By 1968, USAF strength leveled and remained fairly stable until the end of 1969. Army aviation, on the other hand, continued to grow with the UH-1 (Iroquois), popularly known as Huey, continuing to dominate its inventory by almost 53 percent. At the end of 1968, one-half of the Marine Corps' total aviation force was deployed in Vietnam, amounting to 27 of its 56 aircraft squadrons and 6 of its 14 Hawk missile batteries. By the end of 1969, the Marine commitment was reduced to 24 squadrons with further reductions scheduled for CY 70.

In December 1969, there were 6,960 combat and support aircraft based in South Vietnam, Thailand, and aboard carriers in the Western Pacific. These statistics show combined aircraft force levels at the beginning, middle, and end of the period of this report.
TOTAL COMBAT AND SUPPORT AIRCRAFT IN SEA

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Soon after the 1 November 1968 bombing halt in NVN, the U.S. Navy's Western Pacific force of five carriers was reduced to four, two assigned to YANKEE STATION (approximately 18° N, 107° 40' E) in the Gulf of Tonkin, one in the Sea of Japan, and another in port. The number of aircraft at YANKEE STATION varied from 140 to 180, depending upon size and type of the carriers; the total aircraft at the four Western Pacific carriers averaged 16/334 in December 1969.

In the Republic of Vietnam in 1969, under 7AF, there were six Tactical Fighter Wings, one Tactical Reconnaissance Wing, two Special Operations (formerly Air Commando) Wings, and one airlift division consisting of one tactical wing and one Special Operations Wing (Fig. 5). In Thailand, under the Deputy Commander, 7AF/13AF, there were three Tactical Fighter Wings, two Reconnaissance Wings, two Combat Support Groups, and one
*The 432d TRW is a composite wing consisting of two Tactical Fighter Squadrons and two Tactical Reconnaissance Squadrons.*
Special Operations Wing throughout 1968 and 1969. Task Force Alpha (TFA), a wing level agency which operated the Infiltration Surveillance Center based on sensor technology at Nakhon Phanom, Thailand, became operational on 1 December 1967. 17/

Figure 6 shows the total SEA air assets divided among the five major functional roles. Army air is shown separately. The air assets shown in the figure varied only slightly during 1968 and 1969. The most notable changes were the addition of SAC B-52s at U-Tapao in January 1968, 19/ the introduction of OV-10s at Da Nang, Bien Hoa, and Pleiku in July 1968, 20/ and the introduction of AC-119, AC-130, and AC-123 gunships.

From 17 March to 19 November 1968, a combat evaluation of the F-111 (called COMBAT LANCER) was conducted at Takhli RTAFB, Thailand. The unit, consisting of six F-111s, flew 55 combat missions over NVN to evaluate the low level, night/adverse-weather penetration and attack capability. 21/ Three aircraft were lost during the evaluation. 22/

The geographic distribution of the USAF forces is also shown in Figure 6. The air order of battle (AOB) of the combat aircraft shown is that of 31 December 1969 and is typical of the two years covered by this report.

During the same period, the number of personnel assigned to 7AF units varied from a low of 44,812 to a peak of 49,823, averaging approximately 48,000. 23/ Total Air Force military personnel in RVN, including TDY person- nel, rose gradually at a fairly constant rate from 56,468 in January 1968 to 63,349 in September 1969, when it dropped abruptly to 57,468 by
December.- Total USAF personnel strength, including U.S. civilians and local nationals, was apportioned among ten major bases and other outlying locations in RVN (Fig. 8); the strength stayed constant (it varied almost imperceptibly) during the period of this report at around 68,500 until October 1969, when the figure began to decline noticeably.

In Thailand, USAF military personnel increased in 1968 from 28,250 to about 36,000 and leveled there in 1969. The USAF accounted for 76 percent of all Department of Defense (DOD) military personnel assigned in Thailand in 1968 and 1969. In South Vietnam, USAF personnel accounted for only 11 percent of the total U.S. military force.

The enemy's AOB consisted of 262 jet aircraft in December 1969, more than half of which were based in China. In 1968, when NVN bases were subjected to U.S. attack, all but a small alert force had been positioned out-country in China. After the bombing halts of 1 April and 1 November 1968, the North Vietnamese rehabilitated damaged airfields and improved facilities. A substantial number of the NVN force redeployed from China before the end of 1968. The MIG order of battle increased slightly during 1968 and was made formidable by acquisition of additional MIG 21 (Fishbed F) interceptors, constituting more than one-fourth of the North Vietnamese Air Force (NVAF) fighter force in late 1969.

USAF Thailand-based aircraft operated mainly in Laos, both in BARREL ROLL (BR) and STEEL TIGER (SL) (Fig. 9). The SAC B-52s were targeted into Laos and RVN. Carrier-based USN aircraft in the Gulf of Tonkin
THAILAND

COMBAT OPERATIONS ORIENTATION

LEGEND
BR BARREL ROLL
SL STEEL TIGER
POSITIVE CONTROL AREA / BUFFER ZONE
CTZ CORPS TACTICAL ZONE
RP ROUTE PACKAGE

FIGURE 9

SECRET
(YANKEE STATION) flew attacks into NVN, the SL area of Laos, and in I Corps of RVN. The USMC, with its I Marine Air Wing (MAW) bedded down in I Corps bases, worked primarily in I Corps and in SL in Laos. In RVN, operations with VNAF aircraft were conducted exclusively in-country. USAF aircraft in RVN flew missions both in- and out-country but principally in RVN.

In North Vietnam, which was the immediate supply source for enemy activities in RVN, air operations consisted primarily of interdiction bombing until the bombing halt in November 1968. Fighter/Attack aircraft were targeted against significant military and industrial locations. Enemy resistance consisted of air-to-air and ground-to-air defensive actions.

The war in Laos was concentrated in two separate regions. The conflict in the Northeast (BARREL ROLL) between Pathet Lao/North Vietnam (PL/NVN) and Royal Lao Government (RLG) forces was essentially a confrontation of friendly guerrilla and enemy regular/unconventional forces. The conflict was unusual because it was the guerrillas who were supported by airpower rather than the regular forces. Here the airpower was used primarily in close air support (CAS) roles; to a lesser extent it interdicted enemy LOCs and forward supply dumps in BR. Strategically, in terms of the combat application of airpower, the BR and RVN wars were only indirectly related because the war in BR was a self-contained action. The supply lines into BR from NVN were not part of the LOC net through
southern Laos that fed the VC/NVA action in RVN.

The conflict on the eastern segment of the Lao panhandle (STEEL TIGER), on the other hand, was directly related to the war in South Vietnam, because the area was laced with the complex of passes, roads, and trails of the "Ho Chi Minh Trail" (Fig. 10). This region was the focus of a significant air interdiction campaign throughout 1968 and 1969. Highly sophisticated ground and airborne sensor devices enhanced intensive anti-infiltration efforts and claimed a high percentage of the USAF sortie allocation in SEA.

The air war in RVN was fought throughout the country in four corps tactical zones (CTZs). The nature of the war varied from corps to corps. I Corps was the northernmost corps area bordering NVN (DMZ) and Laos. It contained the A Shau Valley which was a favored enemy LOC and assembly area. Khe Sanh was located in I Corps, as was Hue, the ancient capital of Vietnam and the scene of heavy fighting during Tet 1968. II Corps was the largest of the four CTZs and the least densely populated; it shared a common border with Cambodia and southern Laos. Six of the ten major air bases in RVN were located there, five of them on the coastal plain near the sea. Cam Ranh Bay was one of the finest natural harbors in Southeast Asia, and the location of the largest U.S. air base. III Corps was the political center of the Republic of Vietnam. The capital, Saigon, and its servicing airport, Tan Son Nhut, were the nerve center of military and air operations in RVN. Long Binh/Bien Hoa was
ATTACK SORTIES
(USAF & OTHERS)
1968-1969

FIGURE 12
the largest free world military complex in the Republic. III Corps also contained War Zones C and D and the Iron Triangle, well-known enemy assembly and staging areas (Fig. 11). The Cambodian Border was at one point only 44 km from Saigon. IV Corps was the most populous of the four CTZs. Consisting mainly of rich alluvial flatland in the Mekong Delta, the region was known as the "rice bowl" of South Vietnam. Except for isolated peaks, the land does not rise over 10 feet above sea level. The dense U-Minh forest in the Corps southwest was a well known VC/NVA center. Riverine operations were very significant in this region. Vietnamization of the war first began in this Corps and was more advanced there at the end of 1969 than in other CTZs.

The geographical employment of air resources in SEA during the period of this report is graphically illustrated in Figure 12. One of the most striking shifts took place in November 1968 when air attacks over the north were halted and the first COMMANDO HUNT interdiction campaign began in the SL area of Laos. The attack sorties formerly targeted against NVN shifted to the COMMANDO HUNT operation, leaving the overall out-country and in-country sortie rates about the same.

The monsoon climate and its associated weather had a bearing on air operations in SEA. The interior of SEA was dry from January through March 1968. Rainfall then increased in the interior, reaching a maximum in August and September. Along the northeast coast, however, the wettest month was October. Rainfall then decreased to a minimum in December when
it was dry everywhere in SEA. January and February 1969 remained dry. Rainfall built up to a maximum in July in the interior. Along the north-east coast, the maximum rainfall again occurred in October when Hue received a record rainfall. December, as in 1968, was a dry month.

The requirements for in-country close air support sorties and out-country interdiction varied with the seasons and with the level of enemy activity. Figure 13 shows the monthly percent of attack sorties for both in- and out-country. Approximately 57 percent of all attacks in SEA were flown in-country. During the dry seasons, enemy activity in the STEEL TIGER interdiction area was increased.

Of the four corps in RVN, I Corps was provided the greatest number of attack sorties, while III Corps was the second most active (Fig. 14). The II, III, and IV Corps were remarkably stable during the two-year period, showing relatively little fluctuation on a monthly or annual basis. Neither the chronology of significant events listed on the chart nor the seasons appeared to have a marked effect on sortie experience. I Corps, on the other hand, seemed very sensitive to the perturbations.

Combat operations in NVN, Laos, and RVN were conducted day and night. On the average, day attack sorties accounted for 77 percent of the diurnal effort, a percentage that fluctuated no more than two percent from 1 July 1968 to 31 December 1969, when calculated on a quarterly basis.
MONTHLY PERCENT ATTACK SORTIES
IN-COUNTRY & OUT-COUNTRY

PERCENT

OUT-COUNTRY (NVN, SR, SL)

ATTACK SORTIES

IN-COUNTRY (SVN)

FIGURE 13
ATTACK SORTIES - REPUBLIC OF VIETNAM
1968 - 1969
I, II, III & IV CORPS

FIGURE 14
<table>
<thead>
<tr>
<th></th>
<th>CY 68 Avg</th>
<th>J</th>
<th>F</th>
<th>M</th>
<th>A</th>
<th>M</th>
<th>J</th>
<th>J</th>
<th>A</th>
<th>S</th>
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<tbody>
<tr>
<td>USAF</td>
<td>11302</td>
<td>9471</td>
<td>8555</td>
<td>9726</td>
<td>9351</td>
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<td>6468</td>
<td>5633</td>
<td>6158</td>
<td>5669</td>
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<tr>
<td>USMC/USN</td>
<td>5861</td>
<td>5307</td>
<td>4882</td>
<td>5809</td>
<td>6517</td>
<td>6419</td>
<td>6222</td>
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<td>VNAF</td>
<td>2223</td>
<td>2069</td>
<td>2026</td>
<td>2429</td>
<td>2349</td>
<td>2912</td>
<td>2773</td>
<td>3092</td>
<td>3593</td>
<td>3022</td>
<td>3491</td>
<td>3523</td>
<td>3576</td>
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<tr>
<td>TOTAL</td>
<td>19623</td>
<td>17068</td>
<td>15680</td>
<td>18213</td>
<td>18458</td>
<td>19030</td>
<td>18456</td>
<td>17468</td>
<td>18331</td>
<td>13513</td>
<td>12191</td>
<td>12564</td>
<td>12084</td>
</tr>
<tr>
<td>VNAF % of Effort</td>
<td>11.3</td>
<td>12.1</td>
<td>12.9</td>
<td>13.3</td>
<td>12.7</td>
<td>15.3</td>
<td>15.0</td>
<td>17.7</td>
<td>19.6</td>
<td>22.3</td>
<td>28.6</td>
<td>28.0</td>
<td>29.6</td>
</tr>
</tbody>
</table>

SOURCE: Interview, Capt G. H. Kent, 7AF (CPTM) with Lt Col R. F. Kott, CHECO Writer, 6 Feb 70.
VNAF furnished combat and support aircraft for missions throughout the four CTZs. In December 1969, the VNAF unit equipment (UE) inventory consisted of 446 aircraft. Of these, 114 were fighter aircraft and 16 were fixed-wing gunships, for a total of 130 attack aircraft. The remainder of the aircraft were liaison, helicopter, transport, and reconnaissance aircraft. The VNAF was steadily being improved and expanded during 1968-1969. The A-37s and the AC-47s came into the inventory, increasing VNAF combat operations, as shown by the increasing number of VNAF attack sorties:

<table>
<thead>
<tr>
<th>CORPS</th>
<th>1968</th>
<th>1969</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>4.9</td>
<td>4.3</td>
</tr>
<tr>
<td>II</td>
<td>3.9</td>
<td>16.2</td>
</tr>
<tr>
<td>III</td>
<td>24.8</td>
<td>34.1</td>
</tr>
<tr>
<td>IV</td>
<td>15.2</td>
<td>19.4</td>
</tr>
<tr>
<td>Avg</td>
<td>12.2</td>
<td>18.5</td>
</tr>
</tbody>
</table>

While the increase of 6.3 percent in 1969 seemed modest, the rate of buildup examined on a monthly basis was impressive (Fig. 15). The scaling down of the in-country war was apparent as the total attack sorties fell from 17,068 in January 1969 to 12,084 in December. VNAF participation, on the other hand, increased steadily both in absolute and percentage terms, from 2,069 to 3,576 sorties, accounting for 12.1 to 29.6 percent, respectively.
A prime example of Vietnamization of air operations was evident in IV Corps within the 74th VNAF Wing at Binh Thuy. During 1968 and early 1969, pilots of the 74th flew the H-34, the A-1E Skyraider, and conducted limited FAC operations in the O-1. From April to June 1969, the 74th Wing underwent a triple squadron conversion: (1) new UH-1H (Iroquois) combat assault helicopters replaced the aging H-34s, giving an increased airmobile capability to the 211th and 217th VNAF squadrons; (2) A-37B jet fighters replaced the Skyraiders in the VNAF 520th Squadron, enabling air tactical strikes to be carried out more quickly and efficiently; and (3) the 116th Squadron began handling the majority of day FAC missions in the Delta. The increased FAC capability of the VNAF resulted in a reduction of USAF air forces in IV Corps. In December 1969, the 22d Tactical Air Support Squadron (TASS) was transferred from Binh Thuy to Bien Hoa, at which time, ten of its O-1 aircraft were turned over to the VNAF. These O-1s became the nucleus of the 122d VNAF Squadron which activated in January 1970. This was the first step in Phase II of the Improvement and Modernization (I&M) program for VNAF which allowed planning for the 74th Wing's eventual air division status.

By the close of 1969, effects of the RVNAF I&M program were becoming visible in air operations. The 7AF viewed Vietnamization "equal in priority and importance to [its] combat mission," and Gen. G. S. Brown, Commander 7AF, had no doubt that the VNAF would meet their training, activation, and equipping schedules.
CHAPTER III
AIR WAR IN VIETNAM

Tet Offensive and Khe Sanh

The enemy opened 1968 with an all-out attack on key US/GVN installations and population centers, hoping to achieve a complete political and military victory. In December 1967, air reconnaissance discovered NVN troops moving into the valley around Khe Sanh, a critical juncture in I CTZ which guarded the northwestern approaches into RVN from Laos and the DMZ. In response, the Marine garrison at Khe Sanh was strengthened to 3,000 men. Enemy probes began on 21 January 1968 when a NVN battalion unsuccessfully attacked Huong Hoa, one mile from the outpost. Two days later, the enemy began a daily shelling of the base. When intelligence reports estimated the enemy strength as high as 35,000, the Marine strength was doubled to 6,000.

The MACV air plan for defending Khe Sanh was a Search-Locate-An- nihilate-Monitor (SLAM) operation--NIAGARA II. For this effort, all air assets (except Marine sorties providing close air support to Marine ground forces) were placed under the control of the 7AF Commander, who exercised this control through an Airborne Battlefield Command and Control Center (ABCCC). A special Intelligence Control Center was established at 7AF to coordinate all intelligence resources for the NIAGARA operation.

On 24 January, the forward outpost (Elephant), located 18 miles SSW of Khe Sanh just inside Laos, fell to the NVN, and refugees from the camp
flooded eastward along Route 9 to Lang Vei, four miles south of Khe Sanh (Figure 17). The ABCCC and Covey FACs covered the withdrawal by calling in airstrikes on bridges behind the fleeing Lao troops. From this point on, friendly forces at Khe Sanh were effectively pinned down and had to rely almost exclusively on air for defense, resupply, and evacuation of personnel. During the first week of the siege (22-29 January), more than 3,000 tactical airstrikes were directed and over 200 ARC LIGHT sorties were flown in the NIAGARA zone. The Rules of Engagement were relaxed to permit B-52s to drop ordnance within one kilometer of Khe Sanh.

As the second week of the siege began (30 January), the NVN launched the country-wide Tet offensive (Fig. 18). Nearly all major cities in RVN and 34 of the 45 provincial capitals were attacked by enemy soldiers who had slipped into the urban centers undetected. The enemy's stated purpose was to inspire a general uprising of the populace and to cause the fall of the government and the creation of a new one. Before the offensive opened, the enemy had concentrated his attacks on border areas, thereby drawing U.S. and Army of Republic of Vietnam (ARVN) battalions out of populated areas. The siege of Khe Sanh was one such diversion.

On the night of 29-30 January 1968, the enemy simultaneously attacked headquarters and airfields throughout I and II Corps. Nha Trang, Kontum, Ban Me Thuot, Qui Nhon, and Da Nang were hit. On the following night, the attacks spread to the rest of South Vietnam. At Hue, the old imperial
"VC/NVA INITIATED LARGE SCALE SIGNIFICANT ATTACKS"

Source: "Measurement of Progress in Southeast Asia" - (1968 and 1969 Quarterlies), CINCPAC.

*Enemy Initiated Large Scale Significant Attack: Meets the criterion of size plus one or more of the other criterion, (2) through (5). (1) Size: when the enemy force is estimated to be a battalion or larger, or (2) Casualties: When the attack results in a total enemy and friendly KIA and MIA of 30 or more, or (3) Objective: When the enemy has attacked a major installation such as a base camp, airfield, a logistical installation or political/military command and control installation, or (4) Damage: When there is a loss of a substantial amount of equipment, destruction or damage to aircraft or weapons systems, or a large quantity of enemy materiel, supplies, or equipment has been captured, or (5) New Weapons, Tactics or Techniques: When the enemy introduces a new weapon or employs a new tactic or technique."
capital, eight USAF aircraft were destroyed as 1,000 Communist soldiers seized the Citadel, the heart of the city. Whereas in I, II, and IV Corps, the enemy struck both provincial capitals and cities, in III Corps, they hit only the cities, principally Saigon and Bien Hoa. In response to the attacks, Allied units were withdrawn from the countryside to protect the cities. For the first time in the war, airstrikes were put in the cities.

The air commander had to divide his resources between Khe Sanh and other trouble spots throughout the country. Naval and Marine air forces continued to concentrate on the Khe Sanh area. Thai-based USAF aircraft were used primarily to relieve enemy pressure by interdicting the enemy's lines of communications in Laos and secondarily by directly supporting nearby Khe Sanh. RVN-based USAF aircraft were employed primarily against the enemy in urban areas and secondarily at Khe Sanh. During the first three days of the Tet offensive, the number of aircraft sorties supporting Khe Sanh actually increased slightly, but after an expected 2 February attack on the camp failed to materialize, the daily sortie rate was cut in half.

Although virtually all major airfields in RVN came under some form of attack, the main enemy thrusts were against Tan Son Nhut, Bien Hoa, Da Nang, and Binh Thuy. After failing to take any of the airfields, the enemy reverted (18 February) to rocket and mortar attacks. In all, 22 aircraft were destroyed and 126 damaged on the ground. The communists
achieved their most dramatic success at Hue, which they held until 24 February. In the course of the month, the Citadel was reduced to rubble by airstrikes, napalm, artillery, and naval gunfire. By the end of February, the Allies had regained the initiative throughout Vietnam and were returning to the countryside.

The weight of the air response to the Tet offensive is illustrated in Figure 12. During February and March, many attack sorties were diverted from North Vietnam and STEEL TIGER and applied against the enemy in South Vietnam. The number of in-country attack sorties rose from 18,000 in January to 20,000 in February and peaked out at almost 21,000 in March. Forward Air Controllers and helicopter gunships flew constant patrols over the cities and struck against enemy holdouts. An estimated 37,000 enemy were killed in the offensive, but the psychological impact on the Allies was great. The pre-Tet confidence that the NVA was being held back at the borders of Vietnam vanished.

Whereas the VC/NVA attacks on the cities had waned by the end of February, the siege of Khe Sanh continued for another month. Lang Vei had fallen on 7 February. Early in March the siege tightened. On the first day of the month, 500 NVA troops attacked the base but were driven off by B-52s which dropped their bombs within 750 yards of the camp perimeter. Throughout March, the daily average sortie rate against troops, caves, ammunition dumps, and truck parks exceeded 300. An estimated 1,000 enemy soldiers died around Khe Sanh, compared to 200 Marines.
The last ground attack on the camp took place on 11 March; after that, the siege turned into an artillery duel. Tactical airlift kept the base alive with paratroop and use of the Low Altitude Parachute Extraction System (LAPES), which pulled cargo by parachute out the rear of the aircraft as it flew several feet above the ground. By the time Route 9 was reopened into the camp on 12 April, 1,124 airlift and 1,453 reconnaissance sorties had been flown. During the 70-day siege, 23,813 tactical strike sorties were put into the area. In the words of a Senior Army Commander, the defense of Khe Sanh was "probably the first major ground action won entirely or almost entirely by airpower." A high government official viewed it as "the one decisive victory for airpower in the Vietnam war." The validity of both these judgments is suggested by the preponderance of air over ground ordnance delivered during the battle:

<table>
<thead>
<tr>
<th>TONS OF ORDNANCE DELIVERED</th>
</tr>
</thead>
<tbody>
<tr>
<td>By air</td>
</tr>
<tr>
<td>By Ground Artillery</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

Enemy documents captured after the battle attest to the physical and psychological impact of airstrikes on NVN soldiers. One soldier stated in his notebook that fear of B-52 raids was the main cause of desertion of 300 members of his regiment en route to the battlefield. Another soldier who took part in the battle said it was much fiercer than Dien Bien Phu, and wrote:
"From the beginning until the 60th day, B-52 bombers continually dropped their bombs in this area with ever-growing intensity and at any moment of the day. If someone came to visit this place, he might say that this was a storm of bombs and ammunition which eradicated all living creatures and vegetation, even those located in caves or in deep underground shelters."

Khe Sanh was an excellent example of the use of airpower in South Vietnam. In addition to troops in contact, targets during NIAGARA II included bunker storage areas and guns. The 7AF Commander coordinated and directed the tactical strikes and had his own targeting authority. The success at Khe Sanh led to a greater reliance on air and less on ground forces to interdict enemy supplies moving across the RVN borders from Laos. The enemy relied on four avenues to move his supplies into I and II Corps from STEEL TIGER: in I Corps, Routes 9/926 toward Khe Sanh, Route 922 into the A Shau Valley, and Route 165 toward Kham Duc; and in II Corps, Route 110 in the direction of Dak To. LOCs entered III and IV Corps from Cambodia (Fig. 11).

COMUSMACV summarized enemy and friendly actions during 1968 and 1969 as follows:

"Tet and Khe Sanh were high points for the enemy, but not for us. The whole enemy structure--Main Force, Local Force, laborers, intelligence, guides, communications, supplies--all this was at a high point of effectiveness and made it possible for him to commit his forces. However, in terms of manpower, the enemy did not get hurt too badly. But he did lose quality, lose some of his experienced people. In 1968 and 1969, after Tet, we started getting into the whole enemy system with ground and air attacks, working for the attrition of the system. Such things as police activities, small unit actions, ambushes, etc., allowed for a concerted effort against the enemy's system. This caused the subsequent high