Chapter 37

EXPANDING THE BASE--LOGISTIC PROGRESS AND PROBLEMS, 1966

By the beginning of 1966 much progress had been made in establishing and expanding the logistics base needed to support both the additional forces sent to the RVN and the increased scope of US actions against NVN. The problems identified by the Joint Chiefs of Staff in early 1965 had either been solved or were well on the way to solution. In their stead, additional problems generated by the accelerated tempo of the war arose during 1966. Many of these, although primarily theater or service problems, were soluble only at the DOD level. Nevertheless, while their own involvement and influence varied from problem to problem, the Joint Chiefs of Staff maintained an intense interest in all logistic matters relating to the war in Vietnam. They took every action possible within their authority to forestall logistic problems or, when problems arose, to reduce the adverse effects on military operations. 1

The Construction Program

Despite hurried planning, a lack of trained personnel, sometimes insufficient funds, and a scarcity of needed materials, the United States had made remarkable progress during 1965 in developing a logistics base for US operations. In the area of airfield construction, the three existing jet-capable fields at Tan Son Nhut, Bien Hoa, and Da Nang were improved and expanded. US forces had constructed new jet-capable airfields at Chu Lai and Cam Ranh Bay, using aluminum matting, and another field was under construction at Phan Rang as 1966 began. Construction of cantonments and logistic facilities had proceeded at Da Nang, Chu Lai, Qui Nhon, Cam Ranh Bay, Phan Rang, and in the Saigon area. COMUSMACV had charged his component commanders with the responsibility for the construction of these facilities, assigning the Army II, III, and IV CTZs, the Navy I CTZ, and the Air Force airfield construction. The MACV J-4 served as the approval agency to assure proper coordination. In the area of port and depot construction, progress was slower in 1965. Additional

facilities had been planned at Saigon and Cam Ranh Bay, and new ones at Qui Nhon, Da Nang, Chu Lai, Phan Rang, Tuy Hoa, and Vung Tau. But by the end of 1965 only a part of the Cam Ranh Bay project had been completed, and port congestion would continue to be a major problem throughout 1966. In spite of the progress, there was at the beginning of 1966 a construction backlog of 212 battalion months. 2

The construction program for RVN did not emerge "full blown" from any single planning action. Rather it began modestly in the late Spring of 1965, but in later months grew by leaps and bounds. The program's growth exceeded all previous planning considerations, and with this growth came many problems. Resources were extremely limited in RVN, and competition developed among construction agents for available materials. This competition led to unnecessary and wasteful practices. By the latter part of 1965, there was an obvious need for more effective management of the overall US construction program to assure optimum use of resources and to respond quickly to new requirements. 3

**Construction Boss**

The Secretary of Defense reviewed the construction situation during his visit to Vietnam in late November 1965, and on his return to Washington he requested the Joint Chiefs of Staff to consider the requirement for a "construction boss" to supervise all US construction in RVN. 4

The Joint Chiefs of Staff verified the requirement for a general/flag officer under COMUSMACV "with clearly defined authority and functions for planning and managing the MACV construction program." This officer, titled the "MACV Engineer," would supervise and direct all DOD construction commands and agencies, both military and civilian, in RVN, except for those construction/engineer units organic to or assigned to major combat units. The MACV Engineer would also determine present and future construction requirements and would forecast construction requirements and capabilities for both US troops and contract personnel, as well as for RVNAF and third-country forces. The Joint Chiefs of Staff presented

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3. (C-GP 4) JCS 2343/724-1, 11 Dec 65, JMF 9155.3 (1 Dec 65).
4. Ibid.
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their findings to the Secretary of Defense on 20 December 1965 and requested his approval of the MACV Engineer concept.5

Both COMUSMACV and CINCPAC agreed with the need for improved coordination and supervision of the MACV construction program, but they preferred continuation of the present arrangement with the MACV J-4 managing the program. COMUSMACV also requested an expansion of his J-4 staff and control over all DOD funds allocated for construction in RVN.6

The Secretary of Defense decided in favor of the Joint Chiefs of Staff. On 6 January Deputy Secretary Vance approved the establishment of an "engineer construction boss" under COMUSMACV. Mr. Vance specified that the engineer construction boss had full authority to discharge the responsibilities placed upon him and that such authority rested in him and not in the MACV J-4. The MACV Directorate of Construction was activated on 15 February 1966, with Brigadier General C. H. Dunn as the Director of Construction.7

Prior to April 1965, programming and funding of the military construction program in Vietnam were accomplished through the standard, line-item, peacetime controls. With the rapid expansion of the construction program after April, modified line-item controls were authorized. This action was an attempt to reduce some of the more restrictive provisions inherent in the peacetime system. Following the approval of the engineer construction boss for Vietnam in January 1966, the Secretary of Defense published new interim construction approval procedures for Vietnam. The new procedures provided for restructuring of the FY 1965 supplemental, the FY 1966, and the FY 1966 supplemental programs into broad functional facility category groups and for control of the restructured programs by COMUSMACV within the approved dollar ceilings. Although these procedures were issued only as interim guidance to serve until the end of the current fiscal year, they apparently continued in effect throughout 1966.8

5. (C-GP 4) JCSM-891-65 to SecDef, 20 Dec 65 (derived from JCS 2343/724-1), JMF 9155.3 (1 Dec 65).
6. Ibid.
7. (C-GP 4) Memo, DepSecDef to CJCS, 6 Jan 66, Encl to 1st N/H of JCS 2343/724-1, 17 Jan 66, JMF 9155.3 (1 Dec 65). (TS-NOFORN-GP 1) CINCPAC Command History, 1966, p. 707.
8. (U) JCS 2343/847-1, 23 Jun 66, JMF 9155.3 (7 Jun 66).

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At the 8 July 1966 Honolulu meeting with the Secretary of Defense, CINCPAC presented a status report on construction in RVN. Secretary McNamara felt that the program was too large and too expensive. He requested that CINCPAC "take a hard look" at his requirements and that the Joint Chiefs of Staff review these requirements "most critically" before forwarding them to him.  

In accordance with the Secretary of Defense direction, CINCPAC reviewed the RVN construction program and prepared status reports and requirements for the Da Nang, Qui Nhon, Cam Ranh Bay, and Saigon complexes. After studying these reviews, the Joint Chiefs of Staff informed the Secretary of Defense that the requirements defined in the reviews were consistent with the force levels approved in Program #3. The Secretary of Defense apparently found the requirements satisfactory, for he ordered no retrenchments in the RVN construction program.  

**Airfield Construction**

The ascending air operations in Vietnam required additional jet-capable fields during 1966. The field that was under construction at Phan Rang as the year began became operational in March. The first tactical fighter squadron (F-4Cs) arrived at Phan Rang on 14 March and flew its first sorties on the following day.  

The Secretary of Defense in November 1965 had authorized the construction of an additional jet airfield in RVN. It took five months for US military authorities, both in Vietnam and Washington, to agree on a site, and it was not until 27 April 1966 that the Joint Chiefs of Staff were able to...
recommend Hue/Phu Bai to the Secretary of Defense as the preferred location for the new field. The Joint Chiefs of Staff requested the Secretary to secure State Department concurrence with this site. Since Ambassador Lodge had objected to the Hue/Phu Bai site because of the political unrest in the area, the Joint Chiefs of Staff proposed Tuy Hoa as an alternate site, although they, COMUSMACV, and CINCPAC all preferred Hue/Phu Bai.12

By mid-May there had been no reply from the State Department on the Hue/Phu Bai site. In order to get on with the construction, and to avoid the political problems of the Hue/Phu Bai location, the Joint Chiefs of Staff requested Secretary of Defense approval on 26 May for construction of the field at Tuy Hoa, using Air Force Turnkey procedures (construction by a civilian contractor). Deputy Secretary Vance approved the JCS request on the following day and authorized the Secretary of the Air Force to contract for the Tuy Hoa field.13

The Air Force let the contract on 31 May, and CINCPAC was able to deploy the first tactical fighter squadrons to Tuy Hoa in November 1966, though the field did not become fully operational until 1967.14

Supporting Facilities

Construction of supporting facilities in RVN proceeded at a satisfactory rate in 1966. By the end of the year, the United States had constructed cantonments for 463,500 personnel. In addition, it had completed 10.4 million square feet of warehouses, 36.9 million square feet of open storage, and 5.5 million square feet of ammunition storage. Also finished by the end of 1966 were 26 hospitals (8,240 beds), 280,000 kw

12. (TS-GP 4) JCSM-624-66 to SecDef, 27 Apr 66 (derived from JCS 2343/818), JMF 9155.3 (26 Apr 66).
13. (S-GP 4) JCSM-355-66 to SecDef, 26 May 66 (derived from JCS 2343/828-1); (S-GP 4) Memo, DepSecDef to SecAF, 27 May 66, Encl to 1st N/H of JCS 2343/828-1, 2 Jun 66; JMF 9155.3 (13 May 66).
of electrical generating capacity, and $27.1 million worth
of communications facilities.15

Ports

The most serious hindrance to the development of a
logistics base in RVN in 1965 had been the lack of adequate
ports. The rapid buildup of men and equipment, coupled with
the extensive reliance on coastal shipping for resupply
purposes, had quickly overtaxed the already limited RVN port
facilities. At the beginning of the US buildup, there were
only two deep-draft RVN ports--Saigon and Cam Ranh Bay--and
Da Nang with "in-the-stream discharge." During 1965 inten-
sive planning took place for development of the existing ports
and construction of a number of new ports, but by the begin-
ing of 1966 only the project at Cam Ranh Bay, providing two
additional berths, had been completed. In 1966, however, the
results from the earlier planning began to appear as a number
of new port facilities became operational. Although the
congestion was not eliminated by the end of 1966, the port
situation had improved considerably.

In Da Nang the completion of two deep-draft piers, two
LST berths, and a 300-foot wharf increased port performance
from 88,184 short tons in January to approximately 152,000
short tons in December. An additional deep-draft pier and
seven more LST ramps were planned for Da Nang. Chu Lai was
improved as a LST port by channel dredging and construction
of a turning basin and a four-ship LST ramp. During 1966 a
200-foot barge wharf, a permanent LST ramp, two DeLong cargo
piers, and a DeLong ammunition pier were completed at Cam
Ranh Bay, increasing the port performance to 153,000 short
tons in December. LST and barge facilities were constructed
at Nha Trang, raising performance from 9,678 to 21,506 short
tons per month. Improvements at Phan Rang and Vung Ro, which
supported Tuy Hoa airfield, raised the cargo handling at these
ports to 19,174 short tons and 16,072 short tons respectively,
in December 1966. A LST ramp and two barge landings were
finished at Vung Tau, increasing port performance from 6,000
to 27,000 short tons per month during the year.

15. (C) Rpt, MACV Directorate of Construction, "Obser-
vations on the Construction Program, RVN, 1 October 1965 -
1 June 1967," n.d., JMF 911/420 (26 Jul 67) sec 1A.
The Saigon port complex was the major RVN port, and it had quickly become overloaded in 1965. COMUSMACV had formulated plans for improving the Saigon port, including the construction of an augmenting facility, known as Newport, to handle military cargo. But by the beginning of 1966 few of these facilities had been finished, and COMUSMACV viewed the Saigon port congestion and the resulting supply backlog as his most serious logistics problem in the coming year.

The Saigon port congestion was not solely due solely to inadequate facilities. Poor handling procedures and a lack of coordination with shipping agencies in the United States added to the problem. Ships arrived with mixed-priority cargo, and often low-priority cargo had to be off-loaded onto already crowded piers to get at high-priority cargo. Ships were held at anchorage, fully loaded, for days or weeks as floating storage until the cargoes could be off-loaded. Demurrage fees mounted and vital cargoes did not get to front-line forces in a timely fashion.

By February 1966 there was substantial improvement in the Saigon port. Some additional facilities were completed, terminal service units arrived to assist in port clearing, and a policy of loading for single port discharge was instituted in the United States. As a result, only 9 ships were waiting in port for off-loading in February as compared to 25 in October 1965.

Throughout the early months of 1966 COMUSMACV pressed GVN officials, including the civilian port director, to improve operating procedures. In April a working arrangement between COMUSMACV and the GVN provided that US personnel would clear incoming shipments from the port area to separate customs yards where they could be claimed by commercial importers. This relieved one of the chief problems in the commercial port—movement of cargo off the piers once it was off-loaded from the ships.

In a further effort to relieve the congestion, Washington directed and COMUSMACV prepared in May 1966 a plan for the MACV take-over of the Saigon port, including responsibility for commercial imports. This planning resulted in an agreement between the United States and the GVN on 4 July 1966, transferring from the GVN to COMUSMACV the responsibility for the discharge and clearance through the Saigon port of all AID/Central Purchasing Authority cargo (AID financed commodities consigned to the GVN for use in the counterinsurgency
program). The agreement did not go as far as the US plan, and COMUSMACV did not assume responsibility for commercial imports. The military handling of AID/Central Purchasing Authority cargo did benefit the commercial port, however, by freeing GVN manpower and equipment for use on commercial cargo.\textsuperscript{16}

These improvements and the completion of the first facilities at Newport in October partially alleviated the Saigon port situation. But in December a growing labor dispute culminated in a strike of Vietnamese dockworkers and stevedores, and backlogs again built up. As the year ended there was still a serious congestion in the Saigon port. Twenty-nine ships with commercial cargoes were waiting to get into the port.

Again the United States considered a complete take-over of the port to eliminate the congestion. At the Secretary of Defense's direction, COMUSMACV in late December prepared a plan for military control of the Saigon port. The plan, submitted to the Joint Chiefs of Staff on 5 January 1967, called for COMUSMACV to assume responsibility for, and operation of, "all commercial water terminal operations" within the Saigon port complex. Although COMUSMACV prepared the plan, he did not favor its implementation. General Westmoreland pointed out that the plan would require US personnel and equipment not available in-country or approved by the Secretary of Defense. He also feared that a US take-over of the civil sector of the port would have adverse political implications, causing loss of popular confidence in the GVN. Ambassador Lodge shared COMUSMACV's concern over the political implications of such a take-over, and the United States pursued the matter no further.\textsuperscript{17}

\textbf{Lines of Communication}

Secure and efficient lines of communication (LOCs) were essential for the establishment and expansion of a logistics

\textsuperscript{15} (S-GP 4) Ltr, MACV to CINCPAC, "Saigon Port Operations (U)," JMF 9155.3 (17 May 66).

\textsuperscript{17} (S) Msg, DEF 9408 to JCS, 2 Dec 66; (S-GP 3) Msg, JCS 9507 to CINCPAC, 3 Dec 66; (S-GP 4) Ltr, MACV to JCS, "Saigon Port Plan," 5 Jan 67; JMF 9155.3 (17 May 66) sec 2. (S) Msg, Saigon 17376 to State, 6 Feb 67, JCS IN 86868.

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base. In RVN, ground LOCs--railroads and highways--played a minor part in the development of the US logistics base in 1965 and 1966. The VC control of large areas of SVN prevented any effective use of either roads or railroads. What segments of land LOCs were available led from nowhere to nowhere, were in poor repair, and were subject to constant VC interdiction. The nature of the military operations in Vietnam, with the absence of defined battlelines and rear-unit boundaries, also limited the use of ground LOCs.

The Vietnamese National Railroad System (VNRS), which was limited to the coastal areas, was operative in 1966 only for 100 kilometers between Hue and Da Nang, for about 200 kilometers around Cam Ranh Bay, and for 50 kilometers to the northeast from Saigon. In May 1966 COMUSMACV developed an ambitious plan to restore control and operation of the VNRS. But in the remaining six months of 1966, little progress was made in implementing the plan.

The RVN highway system was in much the same condition as the VNRS. Even those highways considered to be open were in poor repair and subject to VC interdiction; there was little long-distance movement of supplies by highway in 1966, and it was not until 1967 that COMUSMACV launched a determined effort to restore and secure RVN highways.

The lack of reliable ground LOCs caused extensive reliance on airlift to move supplies within the RVN. The major source of airlift was C-130 aircraft and USAF and Royal Australian Air Force Caribous. Some indication of the role of the C-130 in Vietnam is seen in the fact that, by the end of 1966, 75 new C-130-capable airfields had been constructed in RVN.

The other principal means for moving supplies was intracoastal shipping. The rapid buildup in 1965 severely overburdened available shallow-draft vessels. In late 1965 the Commander, Military Sea Transport System, Far East, provided seven LSTs, and the Secretary of Defense authorized a contract with the Alaska Barge and Transport Company (AB&T) to provide additional intracoastal shipping. The contract was signed on 8 December 1965, and the first AB&T flotilla arrived off RVN.

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in March. By early May 1966, 49 AB&T vessels were moving cargo between RVN ports. The construction of additional LST facilities in the various RVN ports during 1966 permitted better utilization of LST assets, and the shallow-draft shipping picture had improved significantly by the end of 1966.19

Supply

Another important area in the development of a logistics base in RVN was the establishment of a system of supply. During the rapid 1965 buildup, supply procedures had evolved to meet needs rather than as the result of an orderly preplanned system. With this evolutionary development had come many problems.

A Common Supply System. Out of the many supply problems grew the idea for a common supply system. This concept envisioned a single supply system for all US and third-country forces in RVN in place of the current system where each Service supplied its own forces, often with duplication of effort. The Joint Chiefs of Staff studied the logistic support for operations in RVN during the Summer of 1965 and recommended to the Secretary of Defense on 19 October 1965 the establishment of a common supply system. They favored assigning to the Department of the Army responsibility for development and implementation, in coordination with CINCPAC and the other Services, of a single supply system for all US, RVNAF, and third-country forces in RVN. The Secretary of Defense recognized the need for a single supply system for common items and, on 9 November 1965, requested the Army to prepare an appropriate time-phased plan for such a system. Secretary McNamara specified that funding for the system should be on a common-service (nonreimbursable) basis, as opposed to a cross-service (reimbursable) basis.20

20. (S-GP 4) Joint Staff Study, "Responsive Logistic Support for Combined Operations in the Republic of Vietnam," Aug 65, JMF 4060 (8 Jan 65) sec IA. (S-GP 4) JCSM-763-65 to SecDef, 19 Oct 65 (derived from JCS 2315/349-8); (S-GP 4) Memo, SecDef to CJCS, 9 Nov 65, Encl to JCS 2315/349-9, 12 Nov 65; JMF 4060 (8 Jan 65) sec 2.
The Chief of Staff, Army, prepared the required plan and submitted it to the Joint Chiefs of Staff on 14 January 1966. It provided for the development of supply requirements, programming, budgeting, funding, and provision of designated supplies through "a single integrated logistic system," to be operated by the US Army in support of all US, RVN, and third-country forces in RVN. The plan presented three alternatives as to the scope and range of items to be included in the system. The first alternative included 20,000 line items; the second had a potential of 1.4 million line items; and the third was the same as the second with the addition of approximately 2,000 Army-managed major end items. The plan called for implementation of the system in three phases: an initial phase to begin on 1 March 1966, covering subsistence, general supplies, special service material, and clothing (items currently handled by HSAS), plus packaged POL products; an intermediate phase, beginning about 1 January 1967, with an expanded range and scope of coverage consistent with the capabilities and resources made available to the Army; and a possible final phase, to be implemented if the size of the operations required it, in which case the Army would establish in RVN an element of a theater logistic organization with direct access to CONUS supply sources. 

The Joint Chiefs of Staff forwarded the Army plan to the Secretary of Defense on 4 February, recommending implementation of the initial phase. They also recommended that supplies included in the system be furnished on the basis of reimbursement at the departmental level. The Joint Chiefs of Staff told the Secretary that the Army was developing detailed resource requirements for the three alternatives and that, upon receipt of this information, they would recommend further implementation of the common supply system.

On 28 March the Secretary of Defense approved the implementation of the initial phase of the Army plan. He directed that the system be operated on a cross-service funding (reimbursement) basis, tasking the Department of the Army to develop, in coordination with the other Services, a

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21. (S-GP 4) DA Plan for Common Supply Support in RVN, 12 Jan 66, Att to CSAM 13-66 to JCS, 14 Jan 66, Encl to JCS 2315/349-11, 14 Jan 66, JMF 4060 (8 Jan 65).
22. (TS-GP 4) JCSM-64-66 to SecDef, 4 Feb 66 (derived from JCS 2315/349-12), same file, sec 3.
cross-service funding procedure that would meet legal requirements without being unduly burdensome. He also directed that
movements and other logistic services furnished by one US
Service to another within RVN should be on a common-service
funding (without reimbursement) basis.23

Following this approval, the Army established and began
operation of a common supply system in Vietnam. Supply
support in the categories of subsistence, packaged petroleum
products, and general housekeeping supplies was furnished to
US forces in the II, III, and IV CTZ. Supply support was
also provided to third country forces as specified in appro-
priate country-to-country agreements. By Summer the Army was
planning to extend the common supply system to I CTZ.24

CINCPAC opposed this extension. He believed that the
current Navy-operated supply system was providing responsive
support for the forces then in I CTZ. He saw no reason to
change the mode of support, particularly since the Navy system
was geared to support of the Marines—the principal forces in
I CTZ.25

The Joint Chiefs of Staff, however, considered that the
benefits to be gained by the extension of the common supply
system into I CTZ outweighed the objections. Consequently
on 22 September they directed CINCPAC to implement the initial
phase of the common supply system in I CTZ with a target date
of 1 January 1967. They did allow CINCPAC some leeway to
adjust this date as necessary in order to insure uninterrupted
supply support.26

The Joint Chiefs of Staff on 22 September 1966 forwarded
to the Secretary of Defense time-phasing and resource require-
ment annexes to the Army plan for the common supply system.
After discussing the three alternatives presented in the
annexes, the Joint Chiefs of Staff recommended approval of the
first alternative. This alternative provided for an increased

23. (C-GP 4) Memo, SecDef to CJCS et al., 28 Mar 66,
Encl to JCS 2315/349-13, 3 Mar 66, same file, sec 3.
24. (S-GP 4) Memo, SecA to SecDef, 11 Aug 66, Encl to
JCS 2315/349-17, 16 Aug 66, same file, sec 4.
25. (S) Msg, CINCPAC to JCS, 23 Jul 66, JCS IN 13783.
(S) Msg, CINCPAC to JCS, 5 Aug 66, JCS IN 35833.
26. (S-GP 4) SM-77-66 to CINCPAC, 22 Sep 66 (derived
from JCS 2315/349-20), JMF 4060 (8 Jan 65) sec 4.
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range of common-item support to a total of 25,000 DSA/GSA items, beginning on 1 July 1967 with full implementation by 31 December 1967. 27

Before the Secretary of Defense replied, he reviewed the current common supply system as implemented by the Army. He recognized that progress was being made in establishing stock control procedures, but felt that these procedures were not sufficiently advanced to permit a large expansion of the system at that time.

Consequently, on 12 December 1966, he told the Secretaries of the Military Departments and the Chairman, Joint Chiefs of Staff, that, although the objectives of the common supply system remained valid as long-term goals, the system must be limited for the immediate future. He restricted the common supply system to the current coverage (subsistence, packaged POL products, and limited-range housekeeping materials) plus the addition of a full range of medical supplies. The Secretary also directed that the system be expanded into the ICTZ not later than 1 April 1967. The Joint Chiefs of Staff subsequently revised their instructions to CINCPAC which had set the date as 1 January 1967.

Secretary McNamara did not believe that this delay in expanding the scope of the common supply system needed to inhibit planning for "early extension," and he directed such planning to continue. He added that details could be worked out between himself and the Secretaries of the Military Department without the direct involvement of the Joint Chiefs of Staff. 28

Petroleum. The initiation of the limited common supply system did not resolve all supply problems in RVN, and it had no effect at all on the important areas of petroleum and ammunition. The supply of petroleum was a problem of storage and transport, rather than availability. As US operations had expanded in RVN in 1965, the need for petroleum had increased in proportion, and POL consumption nearly doubled in 1966.

27. (S-GP 4) JCSM-604-66 to SecDef 22 Sep 66 (derived from JCS 2315/349-20), same file.
28. (S-GP 4) Memo, SecDef to Secys of Mil Depts and CJCS, 12 Dec 66, Encl to JCS 2315/349-23, 15 Dec 66, same file.
In January 1966, 1,346,000 barrels were consumed and this figure rose to 2,592,300 barrels by December 1966.

In the Spring of 1965 the principal bulk POL storage in RVN was restricted to the commercial facilities at Nha Be. Great efforts were made during 1965 to increase storage capability. By the beginning of 1966 the total in-country commercial storage capability stood at 880,000 barrels (60 percent of which was utilized for military requirements) and the military storage capacity totaled 382,300 barrels. Only 30 percent of the military storage capacity was permanent. The remainder consisted of collapsible tanks, tanks on barges, and ocean tankers at offshore anchor. The goal for 1966 was not only to increase the storage capacity to meet the expanding needs, but also to reduce and eventually eliminate offshore storage. During the year additional storage facilities were built at Tan Son Nhut, Bien Hoa, Cam Ranh Bay, Vien Loi, and Vung Tau. By May onshore capacity was roughly 692,000 barrels, and by the end of the year it had risen to 1,586,000 barrels—an increase of 229 percent. Offshore discharge facilities were greatly improved in 1966 with the construction of additional pipelines and pumping facilities. As a result, the discharge rate grew from 600 barrels per hour early in the year to approximately 6,000 barrels per hour by the end of the year.

The Air Ammunition Problem. Among the most urgent supply problems that arose in Southeast Asia during 1966 was a shortage of air-to-ground munitions. This shortage adversely affected air operations in RVN, Laos, and NVN and required strong remedial measures to prevent it from doing even greater damage to the air effort. Although authorities in the theater seemed to have been aware that various factors, particularly increased sortie rates and deployment of additional air squadrons, were leading up to a shortage of air munitions in late 1965 and early 1966, Washington officials were taken almost completely by surprise when the emergency actually materialized in April 1966.

Admiral Sharp informed Secretary McNamara on 26 January that increased requirements would probably cause shortages in air munitions during the coming year. He was considering measures to limit ARC LIGHT sorties and to improve target selection procedures. He believed, however, that if
deliveries of "programmed bomb production" stayed on schedule the problem would be eliminated by the beginning of 1967.29

By 1 March the predicted shortages had developed and according to a COMUSMACV report, air munitions were becoming "critically short generally." When he visited Saigon on 3 April, Deputy Secretary of Defense Vance learned that the air munitions shortage was critical and that production could not meet requirements before early 1967. Bomb loads of strike aircraft were being reduced and substitute munitions were being used. Secretary Vance was advised that only 73 percent of the required bomb assets and only 33 percent of the CBU-2 assets were available.30

The full impact of these shortages was not realized in Washington until 8 April, when General Westmoreland described to CINCPAC and General Wheeler the seriousness of the shortages and their effects on his operations. "The lack of USAF aircraft munitions in SEA has reached the point where I consider it an emergency situation," General Westmoreland stated. He said that all possible actions had been taken in the theater, including emergency airlift, to redistribute resources. Despite these actions it had been necessary within the past four days to cancel or not schedule 233 strike sorties. Additionally, because substitute weapons had been used, the effectiveness of the sorties flown had been reduced. The shortage was so acute that, when recent munition shipments had been delayed, missions had been cancelled. "Your immediate intervention is requested," General Westmoreland concluded.31

General Westmoreland's message caused considerable consternation in Washington. Secretary of Defense McNamara informed COMUSMACV on the same day that he was "shocked by the evidence of maldistribution of air ordnance," and that immediate action would be taken to assure the supplies of munitions that were needed. The Secretary named Assistant Secretary of Defense (I&L) Paul Ignatius to head up a high level task force to analyze and solve the munitions problem.

29. (TS) Msg, CINCPAC to SecDef, 290445Z Jan 66, JCS IN 75183.
31. (TS-GP 4) Msg, COMUSMACV to CINCPAC and CJCS, 8 Apr 66, JCS IN 14720.
and directed that he meet at once in Hawaii with representatives of CINCPAC, COMUSMACV, and the Services.32

As a short-range action designed to alleviate the immediate shortage, the Joint Chiefs of Staff authorized CINCPAC on 8 April to divert and commit to operations in Southeast Asia for the use of any of his components, "appropriate air munitions resources in PACOM" regardless of ownership. They specifically authorized him as a temporary measure to take over reserves being held in support of US Forces in Korea.33

With regard to the Hawaii conference on air munitions, the Joint Chiefs of Staff noted that detailed requirements would be developed and matched against assets and production. "Various options to cut pattern to cloth will be examined," the Joint Chiefs of Staff informed CINCPAC.34

On the next day Secretary McNamara cautioned CINCPAC that cutting the "pattern to the cloth" did not mean that he was to plan to curtail necessary operations in anticipation of future munitions shortages.35

Although Secretary McNamara had indicated that the shortage of air munitions stemmed from "maldistribution", the Joint Chiefs of Staff believed that the air ammunition problem was occasioned by four main factors: 1) inadequate production; 2) problems in the ammunition pipeline to Southeast Asia; 3) distribution within Southeast Asia; 4) the level of sorties in Southeast Asia. The shortage was not so much in gross tonnages of bombs, which on the surface seemed adequate, but shortages of types of bombs and bomb and rocket components. In certain types of munitions, for example, a commander might have 1,000 bombs of which only one-third had all essential components, with parts such as tail cones, fuzes, or arming wires not available for the remainder.

32. (TS) Msg, DEF 8036 to COMUSMACV, 8 Apr 66.
33. (TS-GP 4) Msg, JCS 8037 to CINCPAC, 8 Apr 66
34. Ibid.
35. (TS-GP 4) Msg, DEF 8126 to CINCPAC, 9 Apr 66.
On 14 April the Joint Chiefs of Staff delegated to CINCPAC full authority to assign nonnuclear air munitions, and adjust resources, among his component commanders, the allied forces, and CINCSAC's B-52 forces. Further, the Joint Chiefs of Staff directed him to: 1) establish base operating stock levels to be maintained by his component commanders and CINCSAC forces in PACOM; 2) establish consumption rates consistent with available munitions; and 3) adjust tasks and missions for component commanders and ARC LIGHT forces accordingly.36

The Hawaii air munitions conference took place on 11 and 12 April. Considerable delay was encountered in assembling valid production and asset data, a development that "inhibited" the allocation of munitions among the users. Six courses of action were finally decided upon: 1) development of realistic sortie plans, by month, weapon, and Service; 2) provision of operating stock levels; 3) increase of WESTPAC stocks by drawing down on CONUS stocks; 4) provision of better management for production of bomb components; 5) establishment of a realistic pipeline; 6) acceleration of production. After the conference the Secretary of Defense on 15 April released significant USN and USAF assets in the CONUS and authorized priority shipment to Southeast Asia.37

On his return from the Hawaii conference, Assistant Secretary Ignatius established a central office, the Air Munitions Office, using key members of his own staff and experts furnished by the Services to develop, oversee, coordinate, and expedite measures designed to eliminate the air munitions shortages. This office was particularly concerned with production priorities and distribution problems.38

38. Interv, James F. Schnabel with CDR Bruce W. Robertson, J-4, 25 Feb 68.
Analysis of the problem and the adoption of emergency measures did not immediately improve the situation. Hundreds of sorties were canceled or not scheduled in April because of lack of proper ordnance. Extensive transfers of certain types of ammunition were made between Services and among various locations. Only the most lucrative and pressing targets were scheduled for attack, and stringent measures were put into effect in the theater to conserve air ammunition.

CINCPAC, despite the JCS authorization of 8 April, denied on 22 April a CINCPACAF request to withdraw war reserve munitions from Korea for use in Southeast Asia. He feared that such action would yield few benefits and might have adverse political effects.

On 24 April CINCPAC submitted to the Joint Chiefs of Staff his plan for air munitions distribution and consumption during the remainder of 1966. It provided for transfer of CINCLANT, CONUS Navy, and CONUS Air Force stocks to CINCPAC as directed by the Secretary of Defense, and included production information that was forecast as of that date. CINCPAC allocated, by area and Service, combat sorties for which air-to-ground munitions were required, based on the capability of squadrons either deployed or approved for deployment. CINCPAC had by now been allocated all available CONUS-based air munitions, which were being moved to him in accordance with his requests. His future plans would have to depend on production. Although at the 11-12 April Hawaii conference CINCPAC had accepted as satisfactory for planning a loading factor of 1.66 tons of ordnance per sortie, it now appeared that, owing to the shortages, a somewhat lesser loading factor would have to be used. CINCPAC noted that he had the choice of either light-loaded sorties or fewer sorties with full loads. He had decided not to reduce the number of sorties, but would accept underloading.

In a further effort to alleviate ammunition shortages, the President, at the request of the Secretary of Defense, designated eight critical ammunition items on 26 April "as being in the highest national priority category." The eight items included:

41. (S) Msg, CINCPAC to JCS, 24 Apr 66, JCS IN 41461, JMF 9155 (24 Apr 66).
items included three bomb categories (MK-81, MK-82, and M-117) and the 2.75 rocket.\(^{42}\)

On 2 May CINCPAC provided the Joint Chiefs of Staff his plan for tactical aircraft sortie requirements and capabilities in Southeast Asia for the period April-December 1966. After reviewing CINCPAC's 24 April and 2 May submissions, the Joint Chiefs of Staff forwarded to the Secretary of Defense on 10 May a capability plan for Southeast Asia. The plan covered the remainder of the year and consisted of a Southeast Asia combat sortie program, a supporting monthly air munitions expenditure plan, and an air munitions requirements and expenditure summary. The plan was designed to make the best possible use of available ammunition resources while maintaining an optimum sortie rate without resorting to under-loading.\(^{43}\)

On the same day, 10 May, the Joint Chiefs of Staff told CINCPAC that, with reference to his intention to employ light-loaded sorties if necessary to continue programmed sortie rates, he should follow a policy of "requiring full use of aircraft capabilities whenever such use will provide the optimum return for effort expended."\(^{44}\)

The Secretary of Defense approved the JCS capability plan on 24 May as the sortie plan for the remainder of 1966.\(^{45}\)

To speed ammunition deliveries to RVN, the Assistant Secretary of Defense (I&L) requested the Joint Chiefs of Staff and the Military Departments on 23 June to reduce the current pipeline time for air munitions to Southeast Asia from 90 to 60 days during the period July through September.

\(^{42}\) (S-GP 4) NSAM No. 346 to SecDef et al., 26 Apr 66, Encl to JCS 1725/593-1, 28 Apr 66, JMF 4000 (16 Apr 66).
\(^{43}\) (S-GP 4) Msg, CINCPAC to JCS, 2 May 66, JCS IN 53911, JMF 9155 (24 Apr 66). (TS-GP 4) JCSM-317-66 to SecDef, 10 May 66, Encl to JCS 2343/823, 5 May 66, same file.
\(^{44}\) (S-GP 4) Msg, JCS 1498 to CINCPAC, 10 May 66, same file.
\(^{45}\) (TS-GP 3) JCS 2343/760-69, 28 Jun 66, JMF 9155.3 (24 Jan 66) sec 11.
Both the Joint Chiefs and the Services, subsequently, took appropriate action to implement this request.46

Despite the various actions taken in April, May, and June to improve the ammunition situation in RVN, the situation continued to deteriorate until mid-year. In late June the list of air ammunition items in short supply had grown to 13 (as compared with one in December 1965). It included nearly every type of conventional air ordnance, and the overall stockage levels in the Seventh Air Force had fallen to 15 days--against a 45-day objective.47 When Secretary McNamara visited CINCPAC headquarters on 8 July, he was briefed on the current status of the air munitions shortage. He learned that although "every productive action" was being taken, CINCPAC had not yet been able fully to regulate and adjust the distribution of available assets. Of 44,000 tons of bombs scheduled for expenditure in June, only about 37,000 tons had been actually dropped. Although the gross tonnage in possession of the commanders was correct, the right ordnance was not available to the operating squadrons in time to be used as planned.48

From this point on the situation began to improve. Accelerated production in CONUS and increased ammunition inventories in WESTPAC permitted the overall stockage levels in the Seventh Air Force to reach 20 days by 15 July and 30 days by 15 August. By early September the United States had over 130,000 tons of air munitions on hand in Southeast Asia, with an additional 114,000 tons in transit. Because consumption for July and August had not exceeded 45,000 tons per month, the United States had on hand a 90-day supply of

46. (U) Memo, ASD(I&L) to Secys of Mil Depts and CJCS, 23 Jun 66; Encl to JCS 2343/853-1, 24 Jun 66; (S-GP 4) Msg, JCS 5297 to CSA, CNC, CSAF, CMC, and CINCPAC, 24 Jun 66; (S-GP 4) Msg, JCS 9796 to CSA et al., 23 Aug 66 (derived from JCS 1672/328-1); JMF 9155.3 (21 Jun 66).
47. The 2d Air Division was renamed the Seventh Air Force in March 1966.
air munitions. In addition, each succeeding month saw the production of more air munitions than were consumed.49

By late 1966 the Southeast Asia ammunition situation had improved remarkably. In a review of air munitions distribution on 5 November, the Chairman, Joint Chiefs of Staff, informed the Secretary of Defense that, although overall consumption in tons in Southeast Asia was still less than planned, consumption on an item basis of preferred munitions was at or near CINCPAC's requirements. The Chairman did not consider, however, that the situation justified any reduction in air munitions production at this time. The Chairman noted that once CINCPAC's continuing consumption requirements had been satisfied, other theater and Service inventories that had been drawn down to low levels would be reconstituted. The Joint Chiefs of Staff had also instituted a number of actions to assure that the Southeast Asia air munitions inventory and the "future flow" did not exceed both CINCPAC's requirements and his capacity to receive and store munitions. CINCPAC, the Joint Staff, and the Services, in conjunction with the I&L Munitions Office, continued to monitor closely actual versus planned shipment and consumption. In conformance with Secretary of Defense guidance, the Military Departments programmed air munitions not required for Southeast Asia to meet other worldwide shortages or to build up Service war reserve stocks.50

M-16 Rifle. In 1966 the M-16 (M16E1) rifle was first issued to US forces in Vietnam. The M-16 was an accurate, high-velocity automatic weapon; it was lightweight, weighing less than six pounds, and was easy to maintain; and since it functioned easily and resisted the corrosive effects of the jungle climate, it quickly became a favorite of the troops throughout RVN. The issuance of the M-16 made it possible to eliminate the M-1 and the M-14 rifle, the M-1 and the M-2 carbine, the Browning automatic rifle, and the submachine gun from the ground force inventories in RVN.

50. (S-GP 4) OM-1887-66 to SecDef, 5 Nov 66, Encl to JCS 1725/621-1, 8 Nov 66, JMF 9155 (8 Aug 66).
At COMUSMACV's request, the Joint Chiefs of Staff on 10 January approved the issue of M-16s to forces in RVN. Since the existing stock of M-16s was limited, a contract was let for the production of an additional 100,000 M-16s during 1966. At the same time the Joint Chiefs of Staff approved expansion of production and funding to provide the necessary 5.56mm ball ammunition to support the M-16. An additional 123,000 M-16s with supporting ammunition were included in the FY 1966 Supplemental Appropriation request.51

In August 1966 COMUSMACV issued the first M-16s to the RVNAF and third-country forces in RVN. He allotted the RVNAF, ROKFV, and PHILCAG each 170 M-16s for training purposes, and in September he issued 200 M-16s to the Australians and 20 to the New Zealand forces, plus 1,410 additional M-16s to the RVNAF, ROKFV, and PHILCAG. The replacement of the M-14 with the M-16 slowed down in the Fall of 1966 owing to production difficulties in 5.56mm ball ammunition. This difficulty was expected to be overcome in early 1967, when approximately 190 million rounds per month were expected to be available.52

Resupply

Following the decision to commit combat forces in Vietnam, the United States introduced combat forces and service units into RVN at a rapid pace, often faster than the supporting logistical base could expand. This created serious problems of resupply, and several high priority supply procedures were established to expedite the movement of critical items, such as repair parts. With the beginning of the buildup, COMUSMACV had anticipated many supply shortages and had requested the Joint Chiefs of Staff and CINCPAC to require new units arriving in RVN to be self-sustaining for a period of 180 days after arrival. To meet this requirement, CINCPAC developed the PUSH system to provide 180 days of automatic resupply of all items, except bulk POL, for divisions, brigades, combat support, and combat service support units deployed to RVN. Supplies were "pushed" from CONUS to units,

51. (S-GP 4) Msg, JCS 1281 to CINCPAC, 10 Jan 66.
(S-GP 4) JCSM-110-66 to CSA et al., 29 Apr 66, Encl to lst
N/H of JCS 2349/49, 4 May 66, JMF 4630 (29 Mar 66).
52. (S-GP 4) Msg, JCS 3727 to CINCPAC et al., 27 Sep 66.
(S-GP 4) JCSM-325-66 to CSA et al., 7 Nov 66, Encl to
JCS 2343/15-1, 9 Nov 66, JMF 4630 (29 Mar 66).
The individual Services also devised procedures to expedite resupply of their forces. With Secretary of Defense authorization, the Department of the Army established the Red Ball Express system in early December 1965 as a temporary method to expedite the flow of repair parts to RVN. The main features of the system were streamlined requisition procedures and reserved (predictable) airlift capability. The Red Ball Express began on 6 December 1965. Between that date and 6 January 1966 approximately 8,000 requests were submitted, and 3,700 were filed. This allowed 612 major items of equipment to be removed from deadline, including 481 aircraft.

Subsequently, the other Services established similar special procedures to expedite resupply. The Marine Corps also called its system the Red Ball Express. It operated somewhat differently from the Army Red Ball, but served essentially the same ends.

The Air Force called its system Speed Through Air Re-supply (STAR). Under STAR, a forward base in RVN
requisitioned command-designated items (aircraft, vehicles, generators, spare parts, etc.) from a single CONUS depot. Each weapon system or commodity group operated through one specified depot in CONUS; this depot received requisitions, provided funding, and initiated follow-up actions.

Transfer of MAP and ATP Responsibilities

During 1966 the Department of Defense assumed responsibility for a number of functions in RVN which had formerly been under other programs or agencies. The most significant of these was the support of the RVNAF and third-country forces in RVN. Although the commitment of US combat forces in RVN shifted US attention to combat operations, the MAP support for the RVNAF continued. The expansion of operations during 1965 led to a need for increases in RVNAF strengths, and, consequently, successive increases in MAP funding. In addition, the MAP also supported the growing third-country forces in RVN. As a result, the FY 1965 RVN MAP grew from an originally planned $214.9 million to $372.5 million, and the planned FY 1966 MAP expanded in proportion.55

In December 1965 the Secretary of Defense decided that the time had come to transfer funding for RVNAF and third-country support from the MAP to the budgets of the Military Departments. The Joint Chiefs of Staff, in collaboration with the appropriate Assistant Secretaries of Defense, the Services, CINCPAC, and COMUSMACV, developed a concept to accomplish this transfer. The concept, submitted to the Secretary of Defense on 3 March 1966, assumed that the Secretary of Defense would transfer to the Military Departments the unexpended balance of MAP FY 1966 funds as of 31 March 1966. The concept provided that the Services would "plan, program, budget, and fund" for the support of the RVNAF and third-country forces in RVN.54

The Deputy Secretary of Defense approved the JCS concept on 25 March (revising this approval on 16 April), and on the same day the President signed the FY 1966 Supplemental Authorizations and Appropriations Act. Effective with the signing

54. (S-GP 4) JCSM-137-66 to SecDef, 3 Mar 66 (derived from JCS 2343/741-1), JMF 9155.3 (23 Dec 65).
of this act, the Services assumed responsibility for support of the RVNAF and third-country forces in RVN. It was not possible, however, to adjust the complex MAP administrative machinery so arbitrarily, and the development of the formal Service procedures to carry out this new responsibility stretched out over the next year and a half.55

On 30 November the Secretary of Defense assigned to various DOD elements responsibility for certain programs in RVN that had previously been performed by AID. These programs included several specific measures to improve port congestion, civic action programs, and railway sabotage replacement; the conduct of a cadastral survey of An Giang Province; commodity support for the GVN police; highway maintenance; refugee assistance; air traffic control; electrification; military affairs in revolutionary development; and Vietnam television. The DOD assumption of responsibility was retroactive to 1 July 1966. In cases where AID had incurred costs since 1 July, the DOD would reimburse AID at the local (Vietnam) level.56

By the end of 1966 the United States had greatly expanded its logistics base in RVN to meet the vastly increased requirements. This base would have to be further developed and refined in the coming 18 months to meet further increases in US forces, but this expansion would not be of the scale required in 1965 and 1966. Certain problems were still unresolved. These included additional port construction, the alleviation of port congestion, and the securing and opening of road and railroads for the land movement of men and supplies. These were matters that would be pursued in the coming months.

55. (S-GP 4) Memo, DepSecDef to CJCS, 25 Mar 66, Encl to JCS 2343/741-2, 29 Mar 66; (S-GP 4) Memo, DepSecDef to CJCS, 16 Apr 66, Encl to JCS 2343/741-3, 20 Apr 66; JMF 9155.3 (23 Dec 65). (TS-NOFORN-GP 1) COMUSMACV Command History 1966, p. 287.
56. (U) Memo, SecDef to Secys of Mil Depts, CJCS, and Dir DSA, 30 Nov 66, Encl to JCS 2343/968, 30 Nov 66, JMF 7300 (30 Nov 66).