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Problems In Acquiring,
Installing, and Operating
A Communications System In A
Theater Of Operations B-168097

Department of Defense

**UNITED STATES
GENERAL ACCOUNTING OFFICE**

~~701145~~ 096541

JUNE 5, 1972



UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

LOGISTICS AND COMMUNICATIONS
DIVISION

B-168097

Dear Mr. Secretary:

This is our report on problems in acquiring, installing, and operating a communications system in a theater of operations by the Department of Defense.

The report identifies problems that occurred in the program in Southeast Asia and includes suggestions for avoiding such problems in future programs of this type. With regard to the specific problems in this particular program, we believe that you have taken appropriate actions and we have no further recommendations.

C1-2 Copies of this report are being sent to the Appropriations and Armed Services Committees of both Houses of the Congress; the Director, Office of Management and Budget; the Secretary of State; and the Secretaries of the Army, the Navy, and the Air Force.

*H 300
H 500*

Sincerely yours,

A handwritten signature in cursive script that reads "J. K. Fasick".

Director

The Honorable
The Secretary of Defense

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ABBREVIATIONS

ASPR	Armed Services Procurement Regulation
DOD	Department of Defense
GAO	General Accounting Office
IWCS	Integrated Wideband Communications System
MCA	Military Construction, Army
PEMA	Procurement of Equipment and Missiles, Army

D I G E S T

WHY THE REVIEW WAS MADE

The General Accounting Office (GAO) reviewed the acquisition, installation, and operation of the Integrated Wideband Communications System in Vietnam and Thailand because it cost more than \$315 million and because of congressional interest in U.S. activities in Southeast Asia.

FINDINGS AND CONCLUSIONS

The system appeared to be providing the services required. The program, however, could have been handled more economically in the following areas.

- The Government procured from the prime contractors significant quantities of equipment which could have been purchased directly from the manufacturers. The Vietnam prime contractor was allowed an estimated \$6.9 million in fixed fees, profits, and overhead expenses for its procurement services.

GAO believes that the Government could have saved a large part of this amount by directly purchasing the equipment. Savings of lesser significance, but of similar nature, could have been realized on the prime contracts for Thailand. (See p. 9.)

- Costs were incurred for equipment for contingency purposes for which the need was questionable. The costs were \$5.6 million for transportable microwave terminals, and, in addition, an expenditure of \$600,000 was planned for rehabilitating transportable troposcatter terminals.

After GAO questioned the need for these requirements, the Department of Defense (DOD) decided to use the microwave terminals to satisfy a communications requirement in another country and canceled the planned rehabilitation of the troposcatter terminals. (See p. 12.)

- The prime contractor's employees in Thailand were not given access to Government post exchanges and commissaries until late in the program. As a result, additional costs of at least \$1.2 million were incurred and the U.S. international balance of payments was adversely affected because the employees had to make purchases on the Thai economy. (See p. 14.)

--The prime contractor in Thailand was not furnished Government-owned gasoline until about 2-1/2 years after the start of its operations in Thailand. (See p. 15.)

--Thai Government taxes were included in local procurements by the contractor. (See p. 15.)

Although the Army was directed by DOD in 1965 to develop an in-house capability to operate and maintain the communications system, independent of contractor assistance, the following problems affected the accomplishment of this objective.

--Many graduates of special Army Signal School training for this communications system subsequently were not assigned to duty with this system.

--Initiation of Army Engineer School training on the power-generating and air-conditioning equipment was delayed by more than 3 years. (See p. 17.)

RECOMMENDATIONS OR SUGGESTIONS

This review has identified problems that occurred in the program in Southeast Asia, and the report includes suggestions for avoiding such problems in future programs of this type. With regard to the specific problems in this particular program, DOD has taken appropriate actions and GAO has no further recommendations.

AGENCY ACTIONS AND UNRESOLVED ISSUES

DOD agreed with GAO's findings, except as follows:

--DOD stated that the procurements of components by the Government directly from component manufacturers had been considered and discarded because of the urgent requirement to install the communications system and because of the lack of engineering and procurement resources at the time when the technical specifications for the system were being written by the Army. GAO believes that, after the contractor had identified the needed standard types of equipment, such equipment readily could have been broken out for procurement by Government agencies which were procuring identical or similar equipment.

In view of the addition of guidance on component breakout and advance procurement planning to the Armed Services Procurement Regulation after the technical specification for this system was issued, GAO has no recommendation. These additions place greater emphasis on direct procurement of components by the Government and establish certain guidelines to assist project managers in making breakout decisions. (See p. 25.)

--DOD did not acknowledge the fact that the need for communications equipment for contingency reserve was questionable, although it terminated the reserve shortly after GAO brought this matter to its attention. (See pp. 30 and 31.)

--DOD did not agree that more effective management of available resources could have reduced appreciably the period of transition from contractor to Government or the degree of contractor participation during the transition period. DOD stated that the real problem in assigning personnel with specialized training to Vietnam or Thailand was the short duration (1 year) of assignment to those countries and that experience gained over the years dictated that it would not be feasible, under the conditions existing in Vietnam, to completely separate contractor efforts from the operation and maintenance of the communications system. (See p. 49.)

Although GAO has no further recommendations, it believes that this report summarizes problems which were encountered in the acquisition, installation, and operation of a communications system in a theater of operations and which DOD should attempt to avoid in future programs of this nature.

CHAPTER 1

THE SOUTHEAST ASIA EXPERIENCE

The hostilities in Southeast Asia were the first major U.S. military operations to be subjected to an independent review by the General Accounting Office while the operations were in progress. GAO issued a number of reports on these reviews in various areas, such as logistics and foreign aid, when the military activities were at their peak and when the improvements resulting from our work could be realized in on-going operations.

Some of our reviews, which were initiated earlier but were continued during the phasedown period, have resulted in analyses and judgments which now are becoming largely historical as our troop strengths are reduced and combat operations diminish. Nevertheless these independent analyses and judgments should be useful to the executive agencies involved, the Congress, and the public (1) in considering the nature of military preparedness, training, and levels of forces and their composition to be maintained in peacetime and (2) in providing a basis for more timely, effective, and economical operations in the event of future military operations, including activities of the types we have reviewed.

Communications is one such area.

In 1965 the Department of Defense (DOD) began installing an extensive communications network in Southeast Asia at a cost of more than \$315 million. The system has provided essential communications for military operations in Thailand and Vietnam. The design, augmentation, installation, and operation of the system were not without costs and problems which should be avoided in the future if comparable facilities are required to be installed and operated in support of military operations.

These matters are discussed in the following chapters.

We requested and received comments on the matters discussed in this report from the Department of Defense, the Department of State, and the contractors. These comments

have been incorporated in the report where applicable and included DOD's response to recommendations which we made to the Secretary of Defense in a report dated July 13, 1971, which covered our findings pertaining to the Integrated Wideband Communications System (IWCS) in Thailand.

CHAPTER 2

THE INTEGRATED WIDEBAND COMMUNICATIONS SYSTEM

IWCS--part of the worldwide defense communications system--provides the primary U.S. communications in Southeast Asia. The system consists of a series of radio communication links in Vietnam and Thailand. Line-of-sight links are used for distances up to 35 miles; diffraction links are used for distances of 30 to 120 miles, depending on the terrain; and tropospheric scatter is used for longer distances up to 600 miles. Fixed communications facilities generally are employed, although some transportable equipment is used.

The system employs transmitters ranging in power from 1 watt to 10,000 watts and antennas ranging in size from 4-foot parabolas to 120-foot squares. Each link provides from 12 to 300 individual channels of communication.

The need for the system developed from the rapid buildup of U.S. Forces in Southeast Asia which began in 1965. The nature of the conflict demanded an unprecedented network of communications in the field and between headquarters in Southeast Asia and higher headquarters outside the area. The communications requirements were originated by the U.S. Military Assistance Commands in Vietnam and Thailand and were reviewed by the Commander in Chief, Pacific, the Joint Chiefs of Staff, and the Defense Communications Agency.

The installation of the system was approved by the Secretary of Defense in phases, as follows:

Phase	Approval date	Number of new links			Number of expanded links		
		Total	Vietnam	Thailand	Total	Vietnam	Thailand
I	Aug. 1965	24	11	13			
II	Jan. to Feb. 1966	43	31	12	20	11	9
III	Aug. 1966	<u>33</u>	<u>25</u>	<u>8</u>	<u>4</u>	<u>2</u>	<u>2</u>
	Total	<u>100</u>	<u>67</u>	<u>33</u>	<u>24</u>	<u>13</u>	<u>11</u>

IWCS was engineered, installed, and put into operation by one prime contractor in each country. In September 1965 the Department of the Army awarded cost-plus-a-fixed-fee contracts which were valued at \$71.7 million for the Vietnam part and at \$48.7 million for the Thai part. The contracts were modified many times for changes in requirements, and additional cost and fixed-price contracts were awarded for operation and maintenance, training facilities, and other IWCS-related items.

The aggregate value of awards to the two contractors at the time of our review was \$193 million for the part in Vietnam and \$122 million for the part in Thailand, or a total of \$315 million for the IWCS program. The program was financed from appropriations to the Army for the procurement of equipment and missiles and for operation and maintenance.

Contracts for the IWCS program were awarded by the Army Electronics Command, Fort Monmouth, New Jersey. The Defense Contract Administration Services administered the contracts in the United States and the Army Strategic Communications Command administered the contracts overseas.

The installation of IWCS, especially in Vietnam, was hampered by numerous delays, some of which were beyond the control of the Government and the contractors. The causes of these delays included adverse weather, enemy action and related hazards, and late delivery of material to and within Vietnam. The contractor in Vietnam estimated that delays in program phases I and II resulted in additional costs of \$7.5 million.

During our reviews in Thailand and Vietnam, we observed that the system appeared to be performing in accordance with its planned objectives.

CHAPTER 3

POTENTIAL SAVINGS IN PROCUREMENT COST

HAD DOD BOUGHT COMPONENTS

DIRECTLY FROM MANUFACTURERS

The prime contractors received allowances for fees, profits, and overhead expenses for purchasing equipment which the Government could have purchased directly from the equipment manufacturers. We estimate that the prime contract prices for IWCS in Vietnam included \$3.4 million in fixed fees and profits and \$3.5 million in overhead expenses applicable to such equipment.

In our opinion the Government could have saved a large part of this \$6.9 million by directly purchasing equipment consisting of standard military or commercial items and requiring little or no modification. We believe that savings of lesser significance, but of similar nature, could have been realized on the prime contracts for Thailand.

The general policy of DOD, as stated in the Armed Services Procurement Regulation (ASPR), is that contractors furnish all material required for the performance of Government contracts. The policy provides, however, that the Government should furnish material to a contractor when it is in the best interest of the Government by reason of economy, standardization, expediting production, or other appropriate circumstances. This DOD policy which has been in effect since before 1959 was clarified by the addition to ASPR of guidance on component breakout in October 1965 and on advance procurement planning in June 1967.

Component breakout is a procedure whereby the Government procures needed components directly from vendors and furnishes them to prime contractors for end-items. The objective is to achieve substantial cost savings or other benefits to the Government, especially where the prime contract has been awarded without adequate price competition.

In general, the decision whether to use component breakout depends upon the degree and significance of risks to quality performance, reliability, and timely delivery of the end-item which would be involved and upon the estimated overall cost savings. Where the risks, if any, are acceptable and breakout is expected to result in substantial cost savings, the components should be broken out. On the other hand, if such risks are unacceptable, the components should not be broken out. Responsibility for breakout decisions is placed on the project manager, and guidelines are established to assist project managers in making and documenting their decisions.

During our review Army representatives informed us that component breakout probably was not considered when the first specifications were prepared in August 1965. In commenting on our finding, DOD stated that breakout procedures had been considered but that it had been decided that a shortage of in-house engineering and procurement personnel in August 1965 made component breakout infeasible. We requested documentation in support of DOD's statement, but the information furnished does not convince us that breakout had been given serious consideration.

We believe that, inasmuch as the contractor was required by the contract terms to provide DOD with a list of the major equipment to be furnished--including the manufacturer's part, drawing, or model numbers--the equipment could have been identified readily for procurement by already established Government organizations which were procuring identical or similar standard types of equipment. Also, since the items had been bought over a period of more than 2 years, the additional work of awarding and administering the contracts should not have had a serious impact on the work load of the procurement agencies.

Had the Government directly procured these components and turned them over to the contractor, it could have saved up to \$3.4 million in negotiated fixed fees and contractor profits and up to \$3.5 million in contract overhead expenses to procure, inspect, and control the components.

The technical details of our review and findings on this subject are contained in appendix I.

GAO observation

For future procurements of this nature consisting of standard types of equipment which previously have been produced by the manufacturer and require very little technical surveillance after the order is placed, DOD should ensure that procurement officials adequately consider procuring these components directly from the manufacturer and supplying them to the prime contractor of the communications system.

CHAPTER 4

QUESTIONABLE NEED FOR COMMUNICATIONS

EQUIPMENT FOR CONTINGENCY RESERVE

For the purpose of providing early restoration of communications in case of damage inflicted by the enemy on fixed IWCS sites in Vietnam, DOD procured AN/TSC-82 transportable microwave communications terminals valued at about \$5.6 million and, prior to our review in 1969, planned to spend about \$600,000 for rehabilitation of transportable troposcatter communications terminals.

At the time of the proposed procurement and rehabilitation actions, DOD already had available three mobile microwave terminals which had been procured in 1968 for the same type of contingency use. In addition, the prime contractor's operating reports for the 16-month period from November 1967 through February 1969 (which included the Tet offensive) showed that the length of time that communications channels were out of action, for all reasons including enemy actions, was negligible. Such disruptions that did occur from hostile action had occurred on communications links that could not be serviced by the transportable microwave terminals. Prior to 1967 there were no reported outages caused by hostile action on links which could be serviced by the mobile equipment.

Mobile equipment was not the only means of providing communications between points normally serviced by a disrupted link. Redundancy had been built into the IWCS system itself to provide alternate routings of communications traffic when required.

The contractor's monthly operating reports showed that, on many occasions, line-of-sight, troposcatter and diffraction links had been diverted to an alternate route to provide continuation of message traffic while the cause of an outage was identified and corrected.

The details of our review and findings on these matters are contained in appendix II.

After we brought these matters to its attention, DOD canceled the planned rehabilitation of the troposcatter terminals at a savings of \$600,000 and shipped the transportable microwave terminals to U.S. Forces located in another country to upgrade the communications links serving those forces.

GAO observation

DOD, by its action, apparently agreed with our finding that additional transportable equipment was not needed for contingency support of our forces in Vietnam. Had decision-making authorities at the Army and DOD levels made a more thorough evaluation of the need for additional contingency reserve equipment by using the contractor's experience data, they would have been able to critically question the need for the equipment.

CHAPTER 5

NEED FOR JOINT EFFORT BY DEPARTMENTS OF STATE AND DEFENSE TO MINIMIZE CONSTRUCTION COSTS IN FOREIGN COUNTRIES .

Additional costs of at least \$1.2 million were incurred for the construction and operation of IWCS because, prior to June 1970, the U.S. Military Assistance Command in Thailand had denied generally the prime contractor's employees access to such Government facilities as post exchanges and commissaries. Because the contractor's employees were prohibited from patronizing these facilities, they found it necessary to purchase goods on the local economy. Therefore contract prices were increased to cover additional per diem and living allowances which were paid the contractor's employees to offset the higher costs they incurred. The increased purchases by the contractor's employees from local sources resulted also in an adverse effect on the U.S. international balance of payments.

The denial of access arose, at least in part, because the Department of State had no specific arrangements with the Thai Government to grant duty-free importation privileges to U.S. contractor personnel.

Subsequent to June 1970 these facilities were made available to contractor employees, although our study showed that the exchanges and commissaries had adequate capacity for serving them at least from October of 1966.

The details of our review and findings on this matter are shown in appendix III.

We also noted additional avoidable contract costs in the overseas procurement and subcontracting activities of the prime contractor in Thailand, as follows:

<u>Reason for avoidable costs</u>	<u>Amount</u>
Government-owned gasoline not furnished to contractor	\$191,000
Thai Government taxes included in local procurement costs	\$150,000

The contractor started incurring these costs in January of 1966 when it established a fleet of leased vehicles to support its mission on IWCS.

During our review we were informed that the Government, beginning about October 1965, had contracts with certain major oil companies for furnishing gasoline to U.S. military vehicles through commercial service station outlets in Thailand. We believe that the contractor should have been authorized to obtain gasoline through the same sources that the military had used for significant savings to the Government. Not until about 2-1/2 years after the start of its operations, when the contractor informed the Government through a value-engineering proposal of the potential savings, was it authorized to use Government-owned gasoline.

With regard to Thai taxes included in the cost of local subcontracts, DOD commented that the problem of tax relief for U.S. military agencies and their contractors was beyond the control of the contracting officer because of the vagueness of the existing agreements between the United States and Thailand.

Both the Department of State and DOD advised us that, to explicitly describe exemptions for the U.S. Government from Thai taxes, a new, comprehensive, and mutually satisfactory agreement would be needed. They indicated that they would take coordinated action to strengthen the management of the U.S. foreign tax-relief program by added surveillance, continuous monitoring, and advising the overseas military commands with respect to pertinent host country tax information.

The details of our review and findings in this matter are shown in appendix IV.

GAO observation

Prior to entering into a major contract for construction work in foreign countries, DOD, in coordination with the Department of State, should identify and attempt to resolve operational and tax problems in the host country that would adversely affect the cost to the Government or the dollar outflow.

CHAPTER 6

PROBLEMS IN TRANSFERRING OPERATION AND MAINTENANCE

OF THE SYSTEM FROM CONTRACTORS TO THE GOVERNMENT

We identified various problems in training and assigning specialized military personnel to operate and maintain IWCS. Because of these problems a significant amount of specialized contractor assistance continued to be required throughout the Southeast Asia experience.

At the start of the IWCS program in 1965, the Army was directed to develop an in-house capability to operate and maintain IWCS independent of contractor assistance.

At that time existing Government training facilities did not offer instruction on the operation and maintenance of much of the equipment which was to be installed in IWCS. This included electronic and communications equipment, power-generating equipment, and air-conditioning equipment. To provide such training the Army decided to expand the facilities and curricula at the Army Signal School, Fort Monmouth, New Jersey, and the Army Engineer School, Fort Belvoir, Virginia. The estimated contract cost for expanding the facilities at these two locations was \$11.5 million.

The contribution of these expenditures to development of in-house IWCS capability was adversely affected in that (1) many graduates of the Army Signal School IWCS training subsequently were not assigned to IWCS duty and (2) there was a delay of more than 3 years in the start of IWCS training at the Army Engineer School. By the time the engineer facility was ready, DOD had changed its policy of replacing contractor employees with military personnel.

For example, we reviewed assignment information for about 700 men trained in a 9-month period at a cost in excess of \$5,800 a man. Only about 40 percent of the men had been assigned to IWCS duties.

The details of our review, findings, and DOD's comments on these matters are contained in appendix V.

The estimated contract cost for operation and maintenance performed by the prime contractor in Vietnam is summarized in the following table.

<u>Fiscal year</u>	<u>Operation and maintenance cost (000 omitted)</u>
1967	\$ 5,243
1968	8,354
1969	6,329
1970	<u>4,076^a</u>
Total	<u>\$24,002</u>

^aIncludes certain costs relative to non-IWCS equipment.

The table shows the extent of contractor operation and maintenance costs up to 5 years after the Army had been directed to develop an in-house capability to permit early replacement of contractor employees.

GAO observation

DOD spent large sums to expand training facilities and to instruct military technicians to develop the capability to operate and maintain IWCS independent of contractor assistance. For the reasons enumerated above, the planned benefits from these expenditures were not realized fully. DOD subsequently indicated that it no longer planned to completely separate contractor efforts from IWCS.

We believe that DOD should consider whether to maintain in the Department a capability for operation and maintenance of communications systems independent of contractor assistance. Such a capability would enable DOD to either operate communications systems exclusively with military personnel, when necessitated by combat conditions or other compelling reasons, or employ contractor assistance when justified. If DOD decides to maintain this capability, consideration of whether to maintain it within the structure of the regular forces or reserve forces or both should also be given.

CHAPTER 7

SCOPE OF REVIEW

Our review was made to determine the problems that were encountered in the acquisition, installation, and operation of a large-scale communications system in a theater of operations far removed from the offices of the project manager and the contracting officers and to propose actions which could be taken to avoid similar problems in future programs of this nature.

Our fieldwork was performed at various locations in the United States, Vietnam, and Thailand during the period December 1968 to July 1970. We reviewed agency and contractor records, interviewed officials, made observations, and examined reports prepared by various Government officials.

REVIEW OF
CONTRACTOR-FURNISHED EQUIPMENT
SUBJECT TO COMPONENT BREAKOUT

We reviewed nine major subcontracts awarded by the prime contractor to determine if the equipment procured had potential for component breakout. These subcontracts awarded to four vendors were valued at \$20.4 million, or about 34 percent of the estimated \$60.3 million worth of equipment subcontracted under IWCS contracts for Vietnam.

Our tests showed that subcontracted equipment which was valued at \$18.1 million, or about 89 percent of the amount reviewed, appeared to have potential for component breakout. This equipment consisted of standard military or commercial items requiring little or no modification. Some had been procured previously by Government agencies directly from the same vendors to satisfy other requirements. Vendor officials and Government employees assigned to vendors' plants generally were of the opinion that this equipment could have been procured directly by the Government.

Considering the contract requirement to procure standard, on-the-shelf items, we believe that our tests of nine subcontracts were indicative of the extent that equipment procured by the prime contractor could have been broken out.

Examples of the subcontracts reviewed follow.

1. A subcontract provided for procuring tropospheric radio communications equipment and ancillary items at a price of \$7,280,000. Vendor officials told us that this equipment was essentially a transistorized radio developed by the vendor in 1963 from an older tube-type set. The radio components were not stocked but were listed in the vendor's catalog. Data regarding channel capacity and frequency output were needed by the vendor to determine equipment configurations best suited to the customer's needs. No major modification of the equipment was required. The vendor previously had produced this equipment for another customer in 1964.

APPENDIX I

The contractor assisted the vendor in obtaining priorities for the procurement of parts, but the vendor officials stated that they could have obtained such priorities had they been the prime contractor for this equipment. Although representatives of the contractor had inspected the equipment, the vendor officials stated that they could have established their own quality-assurance test program. These officials concluded that the Government could have procured this equipment directly from the vendor.

Quality-assurance representatives of the Defense Contract Administration Services were on duty at the vendor's plant. They told us that the prime contractor had inspectors and engineers testing equipment at the plant. They believed that the prime contractor's quality-assurance effort was largely unnecessary because the vendor also had tested the equipment and because both contractor and Government representatives had witnessed the tests. They told us also that Government inspection at the plant was required because the equipment was to be shipped directly to Vietnam. The Government representatives knew of no reason why this equipment could not have been procured directly from the vendor, and they cited instances in which Government agencies had procured similar equipment from the vendor.

2. A subcontract with another vendor was for \$4,317,000 worth of electronic equipment. Vendor officials told us that equipment, valued at \$3,599,000, included in this subcontract had been designated as AN/FCC-17 and had been developed by the vendor under Air Force contracts during the years 1958 to 1960. This equipment was produced for the IWCS contractor in accordance with existing military specifications. Although not a commercial item, the AN/FCC-17 previously had been procured directly from the vendor by other Government agencies on numerous occasions.

The vendor officials stated that the prime contractor, in ordering the AN/FCC-17 equipment, had to determine the required frequencies, number of channels, and rack configurations. There was, however, very little technical direction from the contractor after the order was placed with the vendor. The remaining items--which were procured under this subcontract and were valued at \$718,000--were essentially standard, commercial items. Vendor officials concluded that

the Government could have procured all the equipment included in this subcontract directly from the vendor.

The Government's quality-assurance representative at the vendor's plant stated that he had inspected equipment as requested by the Government's quality-assurance representative located at the prime contractor's office. He stated also that the contractor had given very little supervision or technical direction to the vendor after the order had been placed. Regional officials of the Defense Contract Administration Services believed that the Government could have procured this equipment directly from the vendor.

AMOUNTS PAID TO PRIME CONTRACTOR
FOR PROCURING EQUIPMENT

The arrangements by which the Government had reimbursed the prime contractor for costs and profit associated with subcontracted equipment depended on the type of prime contract. Under cost-type contracts the contractor was reimbursed for actual costs incurred plus a fee based on the estimated costs used to establish the contract limit. Under fixed-price contracts the estimated costs and profits were included in the negotiated fixed price.

The costs reimbursed to the prime contractor for subcontracted equipment included more than the purchase price of the equipment. Overhead expenses, which included general and administrative expenses and an allowance for independent research and development, were reimbursed on all contracts as percentages of the total estimated contract costs. Engineering services required under the IWCS contracts were reimbursed as a separate item and were not included in overhead expenses.

We estimate that the prime contractor received about \$3.8 million in negotiated fixed fees and profits, as well as \$3.9 million in overhead expenses for equipment subcontracted under the IWCS contracts for Vietnam. Our estimates take into consideration the lower fee and profit rates (in relation to overall contract rates) that generally apply to subcontracted equipment. As stated previously about 89 percent of the value of subcontracted equipment reviewed by us appeared to have potential for component breakout.

Application of this percentage to the total amounts paid indicates that the prime contractor received about \$3.4 million in negotiated fixed fees and profits as well as \$3.5 million in overhead expenses to procure equipment susceptible to component breakout.

We believe that, in the case of Thai equipment, similar types of savings--though smaller in amount because less equipment was involved--could have been achieved by breakout of major standard types of equipment for procurement by the Government rather than by the prime contractor.

COMPONENT BREAKOUT NOT CONSIDERED
BY THE GOVERNMENT

Army representatives responsible for acquiring IWCS were unable to locate documentation for component-breakout decisions on contracts for IWCS. They informed us that component breakout probably had not been considered because of a provision in the technical specifications prepared by the Strategic Communications Command. The specifications dated August 1965 stated that equipment and services for IWCS were to be provided by the prime contractor. The equipment included, but was not limited to, radio equipment, multiplex equipment, interface devices, technical control facilities, tape-relay facilities, antennas, towers, transmission lines, power facilities, air-conditioning equipment, alarm systems, and test equipment. All equipment furnished by the contractor was to be of the latest design and was to be consistent with the state of the art.

The contract for Vietnam provided that IWCS be engineered, furnished, and installed according to the Government technical specification. The contract provided also that all equipment furnished be limited to proven, standard, on-the-shelf items, and that prototype items which could seriously affect system reliability be eliminated. No deviations were permitted, except as approved in writing by the contracting officer. The contractor's technical proposal to the Government was required to include a list of proposed major equipment (including test equipment) to be supplied, together with the quantities and manufacturer's part, drawing, or model numbers.

Because the contractor was not a manufacturer of such equipment, all of it had to be procured from subcontractors. We estimate that \$60.3 million worth of electronic, power-generating, air-conditioning, and test equipment was subcontracted under IWCS contracts for Vietnam.

There would, of course, have been some overhead expenses had the Government procured the equipment directly. Established Government agencies, however, already were awarding and administering contracts for identical, or similar, equipment; and their fixed costs associated with the procurement function would not have been increased appreciably by IWCS component breakout. We believe therefore that a significant part of the overhead expenses reimbursed to the prime contractor could have been saved by component breakout.

AGENCY COMMENTS

DOD agreed that component breakout was an essential element of effective procurement practices. DOD stated, however, that factors other than cost had not been given appropriate weight in our conclusion concerning potential savings. In this regard DOD stated that:

"*** the almost impossible operational deadlines imposed, and the limited staff of engineering and procurement personnel available simply did not permit the use of component breakout. Component breakout procedures were, in fact, considered and discarded for lack of engineering and procurement resources in August 1965 when the technical specifications for IWCS were being written by the Army. The IWCS and other cascading requirements stretched the Army's procurement and engineering resources to the maximum. The risks of procurement delays or incompatible systems could not be chanced."

We requested DOD to provide documentation of its statement that component breakout had been, in fact, considered and discarded for lack of engineering and procurement resources in August 1965.

In reply DOD advised us that it held an evaluation at Fort Belvoir in October 1963 concerning the possibilities of either providing generators and air conditioners from Government assets or procuring these items separately. It was concluded, however, that such equipment had not yet been tested or approved for IWCS requirements. The evaluation cited by DOD preceded IWCS technical specifications by almost 2 years, and the kinds of equipment mentioned represented only a small part of IWCS equipment requirements. Consequently DOD's reply did not convince us that component breakout had been considered for IWCS.

With regard to the lack of engineering and procurement resources in August 1965, we are not suggesting that the engineering function should have been performed by the Government; however, since the needed standard types of equipment had been identified by the contractor, it appears to us that the equipment readily could have been broken out for procurement by the already established Government agencies which were procuring identical or similar equipment. Since the major procurements of equipment for the installation of IWCS covered a period of more than 2 years, we believe that the additional work of awarding and administering the contracts for the standard types of items, as shown by our review, would have had little impact on the overall work load of the Government procurement agencies.

In view of the addition to ASPR after the IWCS program was initiated of guidance on component breakout and advance procurement planning that places greater emphasis on direct procurement of components by the Government and establishes certain guidelines to assist project managers in making breakout decisions, we have no recommendation.

Regarding the risks of procurement delays or incompatible systems cited by DOD, it appears to us that the standard equipment specified by the contractor could have been procured by the Government as effectively as by the contractor.

REVIEW OF NEED FOR
TRANSPORTABLE CONTINGENCY RESERVE EQUIPMENT

AN/TSC-82 TRANSPORTABLE MICROWAVE
COMMUNICATIONS TERMINALS

The AN/TSC-82 is a microwave communications terminal that consists essentially of three transportable vans which house radio, multiplex, and technical control equipment. Although the terminal is transportable, it can perform telecommunications functions expected of fixed installations which use line-of-sight transmission. In an emergency the AN/TSC-82 can be installed and operating in 96 hours, excluding transportation time and time required for site preparation. It also can be removed from one site and reused elsewhere.

In March 1968 the Director of Telecommunications, Department of the Army, directed the Strategic Communications Command to buy seven terminals. The justification for four of these was that using transportable, instead of fixed, terminals at four planned sites would result in cost savings. The remaining three terminals were intended for a contingency reserve, i.e., to provide restoration of communications at line-of-sight links in the event that equipment became inoperative due to hostile action. The seven terminals were procured for \$6.6 million--four of them were installed in lieu of fixed equipment at IWCS sites and three were retained for contingency reserve.

Six additional AN/TSC-82 terminals were procured for contingency reserve early in 1969. The contract price plus the value of Government-furnished equipment totaled \$5.6 million. These terminals were scheduled for delivery between October and December 1969.

In a letter dated July 7, 1969, to the Assistant Secretary of Defense (Installations and Logistics), we questioned the need for the six additional AN/TSC-82 terminals for contingency reserve. We suggested that DOD reevaluate this requirement and consider partial or complete termination of the contract, if the need was not as great as originally contemplated. Our suggestion was based on the following information.

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No communication disruption from hostile action experienced on line-of-sight links in Vietnam

The prime contractor's monthly operating reports for the 16-month period from November 1967 through February 1969 (which included the Tet offensive) showed that the communication channels were out of service a total of only .02 percent of available time and that about one fifth of these interruptions was caused by enemy actions. Moreover disruptions resulting from hostile action occurred on troposcatter and diffraction links rather than on line-of-sight links. The contractor's engineers told us that the AN/TSC-82 could not have been used to restore communications on these links. The remaining outages reported were for such reasons as normal maintenance, operator error, and defective backup equipment.

Monthly operating reports submitted by the contractor prior to November 1967 also showed no instances of outages from hostile action on line-of-sight links.

Alternate-routing capability available

There was significant capability in Vietnam for alternate routing of communications in the event of outage. For example, 19 of the 36 line-of-sight links had one or more alternate routes available within IWCS alone. In addition to alternate routes within IWCS, land lines and tactical equipment provided significant capability. We were told that an analysis by the Strategic Communications Command disclosed that alternate routing existed for practically every link and that there were as many as 20 to 25 alternate routes for some links.

The contractor's monthly operating reports showed that, on many occasions, line-of-sight, troposcatter, and diffraction links had been diverted to alternate routes to provide continuation of message traffic while the cause of an outage was identified and corrected.

As a result of the questions raised in our letter dated July 7, 1969, to the Assistant Secretary of Defense, DOD decided not to send the six additional terminals to

Vietnam. DOD did not consider it economical, however, to cancel the contract. Subsequently DOD decided to use the terminals for upgrading communications equipment in Korea.

LRC-3 TRANSPORTABLE TROPOSCATTER
COMMUNICATIONS TERMINALS

In May 1967 the Department of the Army requested authority to rehabilitate four LRC-3 transportable troposcatter terminals to be used for restoration of certain IWCS links which might go out of service and to meet other emergency requirements in Southeast Asia. These LRC-3 terminals had been replaced by the installation of IWCS fixed sites. Each terminal consisted of two vans--one van originally contained technical control, multiplex, and radio equipment, and the other originally contained two power amplifiers. Most of the equipment originally contained in the vans, except for the power amplifiers, however, had been removed for use at IWCS fixed sites. The LRC-3 rehabilitation program was approved and funded for \$939,000 by the Office of the Secretary of Defense in December 1967.

Four of the eight vans were found to be uneconomical to repair, and four of the eight power amplifiers were unusable. Because of cost consideration it was decided to rehabilitate only two vans, each of which would contain radio equipment and two power amplifiers. The radio equipment was available from a terminated IWCS link, although some modification was necessary. The four usable power amplifiers from the LRC-3 terminals were to be refurbished for this program, and new transportable antennas were to be procured. Rehabilitation of the other two repairable vans would have required purchasing new radio equipment, power amplifiers, and antennas. The estimated cost of this scaled-down rehabilitation program was \$606,000.

It should be noted that the rehabilitated vans would not constitute a completely operational terminal because they would not contain multiplex or technical control equipment. Such equipment would have to be obtained from another source before a rehabilitated terminal could be used to establish an emergency link or to restore an out-of-service link.

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In July 1969 we questioned officials of the Communications Systems Agency about the need for the LRC-3 rehabilitation program and requested certain specific data supporting such a need. The Communications Systems Agency, after consulting several organizations, including the Department of the Army, the Defense Communications Agency, and the Strategic Communications Command, replied as follows:

- Documentation of the basis for the requirement to rehabilitate LRC-3 terminals could not be furnished.
- The nature of the contingency capability was to provide readily deployable restoration in case of major damage to certain types of IWCS terminals for which no capability then was available in Southeast Asia.
- There were, however, no recorded emergency communications losses exceeding 24 hours on this type of terminal.
- The multiplex and technical control equipment would be provided by the concurrent deployment of AN/TSC-82 transportable microwave communications terminals.

The organizations with whom the Communications Systems Agency had consulted generally were in favor of continuing the rehabilitation program, but the Strategic Communications Command recommended that the program be halted just short of contract obligation pending further instructions.

A meeting was held at the Office of the Assistant Army Chief of Staff for Communications-Electronics on October 9, 1969, to review objectives of the LRC-3 rehabilitation program in the light of the GAO review. It was decided that the Strategic Communications Command would initiate a study to analyze the overall Army need for these terminals. As a result of this study, the LRC-3 rehabilitation program was canceled and funds totaling \$939,000 were reprogrammed on February 12, 1970.

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DOD did not acknowledge that the need for the above communications equipment for contingency reserve was questionable. In this regard DOD commented, as follows:

"The AN/TSC-82's were procured and the LRC-3's were programmed for rehabilitation to satisfy firmly validated and approved requirements. At the time these requirements were identified, contrary to the GAO assertions, the existing system was fully employed and it was vulnerable to enemy attack. The sites were attacked and only the Viet Cong can say why they were not attacked more often for they were vulnerable. Even on recent occasions transportable configurations have been used to reroute lost communications. There were no excess channels that could have been used for rerouting. ***"

Although DOD stated that the need for communications equipment for contingency reserve was valid, it terminated the additional reserve shortly after we brought this matter to the attention of DOD officials. Regarding the transfer of AN/TSC-82's to meet Korean requirements, DOD commented:

"The Army plan to utilize the AN/TSC-82's in the upgrade of the Korean Wideband Communications system was initiated prior to any known GAO inquiries. This was natural consequence of a need in Korea, an attempt to avoid the use of funds already programmed for the purpose and the fact that hostilities were lessening in Vietnam and active planning for troop reductions had commenced."

In reply to our request that DOD clarify its statement that the plan to use the AN/TSC-82's in Korea was initiated prior to any known GAO inquiries, DOD stated:

"*** [The Strategic Communications Command,] having need for equipment to meet critical validated requirements in KWN upgrade, initiated planning action in November 1969 to utilize assets. Formal plan was presented in January 1970 and was approved by DOD in February 1970. A search of the records indicates that some of the Army staff were aware of the GAO letter report before there was any plan or decision to use the AN/TSC-82's in Korea."

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As stated previously the GAO letter on the AN/TSC-82's was dated July 7, 1969.

We believe that, prior to procuring, approving officials should have questioned more critically the need for contingency reserve equipment. The actions taken by DOD and the Department of the Army to redistribute stocks and to cancel the proposed rehabilitation of this equipment subsequent to our inquiries demonstrate, in our opinion, that the requirements were dubious. Questions, such as those raised in our inquiries, should have been raised during review of these requirements and prior to approval.

REVIEW OF COST SAVINGS
THROUGH USE OF POST EXCHANGE AND
COMMISSARY PRIVILEGES BY CONTRACTOR EMPLOYEES

Additional costs of at least \$1.2 million were incurred because the U.S. Military Assistance Command in Thailand generally had denied the prime contractor's employees access to Government facilities, such as post exchanges and commissaries, prior to June 1970. Because contractor employees were prohibited from patronizing these facilities, they found it necessary to purchase goods on the local economy. The increased purchases by contractor employees from local sources also resulted in an adverse effect on the U.S. international balance of payments.

DENIAL OF ACCESS TO GOVERNMENT FACILITIES

The initial letter contract for the construction and installation of IWCS in Thailand provided for the use of Government facilities by contractor employees, as follows:

"U.S. Facilities - U.S. Post Exchange, commissary, officers club and medical facilities will be available to all U.S. personnel."

Regulations of the military services state that the overseas command has jurisdiction over the issuance of identification and ration cards needed to obtain access to Government facilities. On November 23, 1965, the Military Assistance Command determined that identification and ration cards would be issued only to the 60 contractor employees then in, or en route to, Thailand. No additional contractor employees arriving in Thailand were to be issued identification or ration cards.

This denial of access to Government facilities for some contractor employees was based on a lack of adequate facilities. In recognition of this the letter contract was amended on January 22, 1966, to state that Government facilities would be available to contractor employees "within the capability of the Command."

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When the letter contract was definitized on May 27, 1966, the following provision for the use of Government facilities was included in the contract.

"U.S. Facilities - Post Exchange, Commissary and Medical Facilities will be available to all contractor personnel within the capability of the Command. APO [Army Post Office] mailing privileges will be extended to the contractor and to all his U.S. National personnel."

Effective August 12, 1966, however, all identification and ration cards issued to contractor employees were revoked and access to Government facilities was denied.

The next contract, which was for operation and maintenance of IWCS sites in fiscal year 1969, included no provisions for the use of Government facilities by contractor employees. Included in the contract cost, however, was an amount for employees' compensation which was specifically related to the nonavailability of post exchange and commissary facilities.

Contract officials advised us that, prior to October 1966, the post exchange and commissary facilities in Thailand were not adequate to satisfactorily accommodate contractor employees. Government post exchange and commissary officials, however, told us that new facilities were put into service which could have accommodated contractor employees commencing in October 1966.

As stated previously, service regulations stipulate that the overseas command may decide whether access to Government facilities will be granted to contractor employees. We noted that the final decision to deny contractor employees access to Government facilities, effective August 12, 1966, was based on a determination that criteria in the service regulations had not been met. The regulations state that logistic support (including post exchange and commissary facilities) may be furnished if certain conditions are met and if the items:

"*** cannot be obtained from local civilian sources or cannot be imported from other sources,

or are not reasonably available, whether from local civilian sources or by importation."

The criteria set forth in the service regulations do not consider monetary savings that might accrue to the Government by providing logistic support to DOD contractors. Further they do not consider this support as a means for improving the U.S. balance of payments.

Because post exchange and commissary facilities were not made available to its employees, the contractor increased the per diem and living allowances by \$2 a day, effective August 15, 1966. The Government contract administrators approved this increase as an allowable contract cost.

In January 1970 we brought this matter to the attention of the Secretary of Defense and the Secretary of State. We pointed out the additional cost to the Government--about \$1.2 million by April 1969--and the adverse effect on the U.S. international balance of payments, as a result of purchases from local sources by contractor employees.

We proposed to the Secretary of Defense that consideration be given toward revising the service regulations to provide for furnishing logistic support, such as post exchange and commissary privileges, to contractor employees in overseas areas, or at remote locations, where such arrangements would have a significant beneficial effect on contract costs or on the U.S. international balance of payments.

DOD did not comment on this proposal to change the regulations. DOD and the Department of State indicated, however, that by June 1970 post exchange and commissary privileges had been extended to contractor employees.

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The Department of State advised us that in Thailand the U.S. military support facilities, such as post exchanges and commissaries, were exempt from local tax and licensing laws as U.S. Government agencies or instrumentalities. Therefore access to post exchanges and commissaries selling tax-free and duty-free goods could be accorded only to persons entitled to exemption from applicable Thai tax and customs laws.

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In the case of contractor employees, no specific arrangements were made with the Thai Government to grant duty-free importation privileges. To avoid risking limitations by the Thai Government on existing informally granted privileges, it was decided to withhold post exchange and commissary privileges from contractor employees.

The Department of State replied further that these were matters of judgment and that the limits of what was considered possible had varied over the years. The Department indicated that a significant decrease in the number of contractor employees was a factor in the decision during 1970 to extend post exchange and commissary privileges to all U.S. contractor employees engaged in IWCS work in Thailand.

REVIEW OF PROBLEMS IN THE PROCUREMENT OF
MATERIALS, SUPPLIES, AND SERVICES IN THAILAND

In the overseas procurement and subcontracting activities of the prime contractor in Thailand, we noted avoidable contract costs, as follows:

<u>Reason for avoidable costs</u>	<u>Amount</u>
Government-owned gasoline not furnished to contractor	\$191,000
Thai Government taxes included in local procurement costs	150,000

GOVERNMENT-OWNED GASOLINE NOT
FURNISHED TO CONTRACTOR

As previously stated (see app. I), the Government should furnish material to a contractor for the performance of Government contracts, when it is determined to be more economical.

Beginning in January 1966, shortly after establishing its IWCS program field office in Thailand, the contractor operated a fleet of leased vehicles in support of the contract. Since the Government did not furnish gasoline for these vehicles, it was necessary for the contractor to purchase the gasoline on the local Thai economy. The average price of gasoline purchased was 39 cents a gallon in Bangkok, Thailand, and 52 cents a gallon outside Bangkok, whereas the average U.S. Army stock-fund price for gasoline was 12 cents a gallon. The additional costs to purchase gasoline on the local economy totaled about \$191,000 during the period January 1966 through June 1968.

In May 1968 the contractor brought to the attention of the Government contract administrators the potential savings possible if the Government would furnish the gasoline. As a result the contractor was given authority to use Government gasoline as of July 1, 1968.

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We recommended that the Secretary of Defense require that, prior to awarding overseas contracts involving a need for significant quantities of gasoline, contracting officers determine the feasibility of lowering operating costs by furnishing Government-owned gasoline in direct support of the contract.

THAI GOVERNMENT TAXES INCLUDED IN LOCAL PROCUREMENT COSTS

We observed instances where the contractor had paid Thai business taxes which were identified and included in the cost of local subcontracts. Contractor procurement employees informed us that such taxes probably also were included in the price paid for other purchases, although not specifically identified. We estimate that the total construction subcontract cost of about \$6.8 million as of March 31, 1969, included business taxes amounting to about \$150,000.

ASPR includes guidance to contracting officers in placing contracts with American and foreign contractors for work to be performed, or services and supplies to be provided, outside the United States. ASPR states that a tax exemption clause shall be included in the contract and that, at the time of negotiation of the contract, the contracting officer shall obtain and include in the contract files detailed information concerning the specific types and amounts of taxes normally applicable to the transaction from which the Government is exempt under the provisions of applicable tax agreements.

When the letter contract was awarded and later when the contract was definitized, no mandatory tax-exemption clause was included in the contract and the contract files were not documented concerning foreign taxes from which the U.S. Government should have been exempt. We were informed by DOD that, when the contract was negotiated, the contracting officer had inquired about the availability of relief from Thai taxes and was advised that relief could not be made available. He therefore did not include the clause in the contract. The clause was later added to the contract; however, we found no evidence that any attempt had been made to obtain exemptions from Thai business taxes.

The underlying reason for the tax-exemption problem in Thailand has been the vagueness of the country-to-country agreements as to the relief available to U.S. military agencies and their contractors. A more complete discussion of our observations on problems related to Thai taxes paid by the U.S. Government is included in our report to the Congress entitled "Questionable Payment of Taxes to Other Governments on United States Defense Activities Overseas" (B-133267, Jan. 20, 1970).

AGENCY COMMENTS

DOD agreed with our recommendation that, prior to awarding overseas contracts, the contracting officer determine the feasibility of furnishing Government-owned gasoline to the contractor. In the case of Thailand, however, DOD stated that no such provision had been made in the letter contract because, at that time, DOD was incapable of supplying the gasoline. DOD stated further that, when the supply became available, contractual assignments had been made to support the contractor with Government-owned gasoline.

During our review we were informed, however, that the Government had contracts with certain major oil companies beginning about October 1965 for furnishing gasoline to U.S. military vehicles through commercial service station outlets in Thailand. We believe that the contractor should have been authorized to obtain gasoline through the same sources that the military used, at significant savings to the Government. Not until the contractor, through a value-engineering proposal, informed the Government of the potential savings was it authorized to use Government-owned gasoline.

With regard to Thai taxes included in the cost of local subcontracts, DOD commented that the problem of tax relief for U.S. military agencies and their contractors was beyond the control of the contracting officer because of the vagueness of the existing agreements between the United States and Thailand.

Both the Department of State and DOD advised us that, to explicitly describe exemptions for the U.S. Government from Thai taxes, a new, comprehensive, and mutually satisfactory agreement would be needed. They indicated that they

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would take coordinated action to strengthen the management of the U.S. foreign tax-relief program by developing detailed procedures to guide, coordinate, and control the administration of tax matters affecting U.S. military expenditures in the Pacific area, by continually monitoring the program, and by advising the in-country military commands with respect to pertinent host country tax information.

REVIEW OF
PROBLEMS IN TRANSFERRING
OPERATION AND MAINTENANCE OF THE SYSTEM
FROM CONTRACTORS TO THE GOVERNMENT

The Army was directed in August 1965 to develop an in-house capability to operate and maintain IWCS independent of contractor assistance. Problems in training and assigning specialized military personnel, however, adversely affected the development of such capability, and a significant amount of specialized contractor assistance continued to be required.

Government training facilities existing at the start of the IWCS program did not offer instruction courses on the operation and maintenance of much of the equipment which was to be installed in IWCS. This included electronic and communications equipment, power-generating equipment, and air-conditioning equipment. To provide such training the Army decided to expand the facilities and curricula at the Army Signal School, Fort Monmouth, New Jersey, and at the Army Engineer School, Fort Belvoir, Virginia. The estimated contract cost for expansion of the facilities at these two locations was \$11.5 million.

The contribution of these expenditures in developing in-house IWCS capability was adversely affected in that (1) many graduates of the Signal School IWCS training were not subsequently assigned to IWCS duty and (2) the starting of IWCS training at the Engineer School was delayed more than 3 years. By the time the engineer facility was ready, DOD's thinking had changed as to the desirability of replacing contractor employees with military personnel.

EXTENT OF OPERATION AND MAINTENANCE
PERFORMED BY PRIME CONTRACTOR IN VIETNAM

In August 1965 the Deputy Secretary of Defense, in approving the installation of IWCS, noted that the program called for the use of a large number of contractor operation and maintenance personnel, which would have an annual per

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capita cost of \$20,000 to \$25,000. In view of the urgent military need for the program, the Deputy Secretary raised no objection to the employment of contractor employees. The Army was directed, however, to concurrently develop an in-house capability to permit early replacement of contractor employees.

The initial IWCS contract for Vietnam provided that the contractor operate and maintain each link from the time the link became operational through the end of fiscal year 1968. The agreement covered electronic equipment, power-generating equipment, and air-conditioning equipment. Additional contracts were awarded for fiscal years 1969 and 1970. The operation and maintenance of power-generating equipment and air-conditioning equipment were included for only part of this period because responsibility was transferred to other contractors.

The estimated contract cost for operation and maintenance performed by the prime contractor in Vietnam is summarized in the following table.

<u>Fiscal year</u>	<u>Operation and maintenance cost (000 omitted)</u>
1967	\$ 5,243
1968	8,354
1969	6,329
1970	<u>4,076^a</u>
Total	<u>\$24,002</u>

^aIncludes certain costs relative to non-IWCS equipment.

The table shows the extent of contractor operation and maintenance costs up to 5 years after the Army had been directed to develop an in-house capability to permit early replacement of contractor employees.

LACK OF MAXIMUM UTILIZATION OF GRADUATES
OF SIGNAL SCHOOL IWCS TRAINING

The Army Signal School instituted several new courses in strategic communications which, together with certain

existing courses, formed the curricula on IWCS equipment. The graduates of these courses received military occupational specialties (job classifications) signifying that they were qualified for employment in the operation and maintenance of IWCS electronic and communications equipment. These specialties were designated as 26V and 32E. Some graduates of existing tactical communications courses who received specialty 26L also received training in one of the courses relating specifically to IWCS equipment. Another existing course, specialty 32D, trained the facility controllers employed in IWCS. This course, however, was not specifically oriented toward IWCS electronic and communications equipment. These courses ranged in length from 17 to 36 weeks. Training in the new courses commenced in August 1967.

During the 2-year period July 1967 through June 1969, 1,413 graduates received military occupational specialty 26V or 26L plus specialized training on IWCS equipment and 899 received specialty 32E. In fiscal year 1968 the direct and indirect costs for providing these courses ranged from \$5,880 to \$8,180 for each graduate. These costs included pay and allowances.

IWCS electronic and communications equipment was housed in two new prefabricated buildings and in several existing buildings. The equipment and prefabricated buildings were furnished by the two IWCS prime contractors. The estimated contract cost for the expansion of training facilities was \$10.2 million.

Many graduates of IWCS training courses
assigned to areas other than Southeast Asia

Assignments of Army enlisted personnel are made by the Office of the Chief of Personnel Operations, which is within the Army Staff. Representatives of that office told us that requisitions for personnel originated in the field commands. Personnel are requested to fill positions from the requisitioning unit's personnel allowance tables. The requisitions flow through the chain of command until they reach the Office of the Chief of Personnel Operations. There they are processed through a computerized personnel record which contains the primary and secondary military occupational specialties of each member of the Army. Personnel completing courses at training schools are one of the primary sources

for filling requisitions for technical skills. The selection is made about 6 weeks prior to graduation.

We reviewed assignment information for 704 of the 770 enlisted personnel who graduated from the Army Signal School during the 9-month period October 1968 through June 1969 and who received military occupational specialty 26V, 32E, or 26L plus specialized training on IWCS equipment. Assignment data were not available for the remaining 66 graduates during that period. A total of 267 graduates, or about 38 percent of the number reviewed, received assignments to locations other than Vietnam or Thailand. Some were assigned to locations within the United States.

Many IWCS-trained personnel assigned to Vietnam not effectively utilized

We selected at random the names of 91 enlisted personnel who (1) had graduated from the Army Signal School from October 1968 through July 1969, (2) had received military occupational specialty 26V, 32E, or 26L plus specialized training on IWCS equipment, and (3) had been assigned directly to Vietnam. We made inquiries at various organizational levels in Vietnam and interviewed the graduates to ascertain whether they actually were working on assignments which made effective use of the specialized IWCS training they had received. Of the 91 personnel selected, eight had left Vietnam at the time of our review and there was no record of the arrival of 12 for duty in Vietnam. Our inquiries showed the following information about the remaining 71 graduates.

--Thirty-nine graduates, or 55 percent, were working in their primary military occupational specialty on IWCS.

--Eight graduates, or 11 percent, were working in a related military occupational specialty on IWCS.

--Twenty-four graduates, or 34 percent, either had not been assigned to the group responsible for operation and maintenance of IWCS or had been working in military occupational specialties unrelated to their IWCS training. Some graduates had been assigned

duties as switchboard operator, administrative specialist, clerk-typist, light-vehicle driver, and light-weapons infantryman.

The Army Signal School also had reviewed the utilization of IWCS-trained personnel. Questionnaires were sent to a sampling of persons possessing specialties 26V and 32E who graduated from October 1966 through July 1969 and were assigned to Vietnam. Of the 108 replies received, 54 persons, or 50 percent, stated that they were working in the specialty in which they had received school training. Forty persons, or 37 percent, said that they were working in a related specialty. A related specialty was defined in the questionnaire as one in which the graduate used electronic theory, troubleshooting techniques, or other skills closely related to those of his school specialty. Fourteen persons, or 13 percent, stated that they were working on an assignment that did not require the use of training received at the Signal School.

DELAY IN ESTABLISHING IWCS TRAINING
AT ENGINEER SCHOOL

The Engineer School planned to give training on IWCS power-generating equipment and air-conditioning equipment in a prefabricated building to be constructed for that purpose. The cost of establishing the IWCS training facility was estimated at \$1.3 million and included a building which cost about \$250,000. Three new courses were instituted that, together with prerequisite courses, ranged in length from 10 to 15 weeks. These courses had an annual estimated capacity of 556 students.

Because of problems in planning for funding of the building, completion of the facility was delayed and training did not begin until March 1970.

Delayed construction of
Engineer School Building

The planning document under which IWCS was established provided that all facilities required to complete the communications sites be procured with Procurement of Equipment and Missiles, Army, (PEMA), funds. This was in accordance with the policy set forth by the Deputy Secretary of Defense in a memorandum dated December 1964 concerning the financing of communications systems. The rationale for using PEMA funds was that these facilities were incidental to the procurement and installation of communications systems and served no other purpose. The estimated budgetary requirements included PEMA funds to establish training facilities at the Army Signal School and the Army Engineer School.

In May 1966 the Engineer School developed a plan for training personnel to operate IWCS power-generating equipment and air-conditioning equipment. The plan called for constructing a prefabricated building to house the training equipment, since no existing facilities were available. The building was to be completed in December 1966, and training was to begin in January 1967.

Several methods were proposed for funding the building construction, all of which involved the use of PEMA funds.

In June 1966 the training plan was submitted to the Continental Army Command which is responsible for operating Army training schools. The Engineer School pointed out that, unless one of the proposed funding methods was approved, emergency Military Construction, Army (MCA), funding would be necessary, which would cause a delay of 12 to 18 months in starting training.

In October 1966 the IWCS contracting officer at the Army Electronics Command suggested to authorities at the Engineer School that PEMA funds be transferred to the school so that contracts for building construction could be awarded by Fort Belvoir. The Electronics Command made the alternative suggestion that the Engineer School grant permission to the command to award the construction contracts. The Engineer School then questioned the propriety of using funds other than MCA for this construction and requested guidance from the Continental Army Command.

In December 1966 the Continental Army Command requested advice from the Army Deputy Chief of Staff for Logistics on the propriety of using PEMA funds for the construction. The command furnished general specifications on the type of facility to be constructed and pointed out the need to accommodate the student enrollment planned for fiscal year 1968. It stated that comparable facilities were funded by PEMA at other Army installations.

In January 1967 the Department of the Army notified the Continental Army Command that PEMA funds were not appropriate for the proposed construction. The Department of the Army stated that training facilities regularly were included in the annual MCA program and that the earliest program in which the proposed construction could be included was for fiscal year 1969. It suggested that the use of existing facilities be considered.

In February 1967 the Continental Army Command requested the Department of the Army to reconsider its decision and to give immediate authorization to use PEMA funds for the construction. It emphasized the urgency of the training requirement and stated that no existing facilities were available at Fort Belvoir and that no other means were available for providing the required facility on a timely

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basis. The command stated further that the approved IWCS planning document appeared to permit utilization of PEMA funds for construction of all IWCS facilities, including training facilities. The Department of the Army, however, reaffirmed its decision and informed the Continental Army Command in March 1967 that training facilities were to be funded under the MCA appropriation.

The Army Electronics Command awarded contracts, valued at \$783,000, to the two IWCS prime contractors in June 1967 to provide the required training equipment at the Army Engineer School. The equipment was delivered to Fort Belvoir by January 1968 and held in storage pending construction of the required facility.

Early in 1969 a contract for the construction of a Butler-type steel building at Fort Belvoir was awarded as an MCA project. The contract, valued at about \$250,000, called for the building to be completed in November 1969. Construction was delayed, however, and the building was completed and training was begun in March 1970, more than 3 years later than the initial target date for starting training at the Engineer School.

Funding of Signal School building with procurement funds

The Army Electronics Command funded the procurement of two prefabricated steel buildings at the Army Signal School through the PEMA appropriation. The buildings, costing an estimated \$200,000, were included in a contract awarded to the IWCS prime contractor for Vietnam in November 1966. The IWCS project manager was notified by the Army Materiel Command in January 1967 that the Department of the Army had disapproved the use of PEMA funds for building construction at the Army Engineer School. At that time construction at the Signal School was already in progress.

The IWCS project manager and representatives of the Signal School and the Army Electronics Command stated that they believed the use of PEMA funds was justified. The buildings were completed and training was begun in August 1967--about 2-1/2 years before training began at the Engineer School.

AGENCY COMMENTS

DOD agreed that not every Army Signal School graduate having specialized IWCS training had been assigned to Vietnam or Thailand but stated that this was not unusual. In this regard DOD commented, as follows:

"On completion of the basic signal courses, graduates are assigned a Primary Military Occupational Specialty (PMOS) and become available for assignment to any field command authorized and requiring their specialty on non-mission peculiar equipment. ***

"The IWCS is mission peculiar, both as to hardware and system. The military personnel in question, trained to help maintain the system, however, have PMOS's both tactical and strategic in nature, which are not peculiar to the system. It is, therefore, not unusual that at certain times IWCS trained personnel might be assigned to locations requiring their PMOS or SMOS [Secondary Military Occupational Specialty] other than Vietnam or Thailand. The subject of personnel assignments is really only part of the problem. The real problem is one year assignments in sophisticated skills. These critical specialists required at least six months on the job to begin to be a journeyman and then their tour was half over."

DOD agreed that the fact that personnel were working outside the military occupational specialty for which they had been trained was generally undesirable. DOD stated, however, that circumstances existing at the time of the malassignment would have to be considered and that, in certain instances, malassignment might be the best utilization of personnel available at the time.

DOD stated also that the GAO statistics on personnel utilization were somewhat misleading, as follows:

*** Twenty-four graduates in the sample taken were designated as either not working on IWCS or

APPENDIX V

working in areas unrelated to their MOS [Military Occupational Specialty]. The number of those graduates who were not working on IWCS but were working within their MOS's and assigned to a non-IWCS unit was not given. The sample taken by the Army Signal School was larger and covered a longer period and showed that 87% of all graduates were assigned to jobs either in their MOS or a related specialty."

With regard to DOD's interpretation of the GAO statistics on personnel utilization, it should be noted that DOD considered personnel who were not working on IWCS but were working within their primary or secondary occupational specialty to have been properly utilized. This position, in our opinion, does not give adequate weight to the purpose for which the IWCS training facility was established.

DOD added that it did not believe that more effective management of available resources appreciably could have reduced the period of transition from contractor to Government or the degree of contractor participation during the transition period. DOD stated that experience gained over the years dictated that it would not be feasible under the conditions existing in Vietnam to completely separate contractor efforts from IWCS and that reduction in contractor participation was accomplished as quickly and as completely as safely could be expected under the circumstances.

With reference to the delay in completion of the IWCS training facility at the Army Engineer School, DOD argued that the effect of the delay was not as significant as we had implied and stated that:

"*** Changes to the original IWCS plans required for economical and other reasons that the maintenance of power plants and air conditioning equipment be performed for the time being by civilian contractors. Since these were the subjects to be taught at the Fort Belvoir facilities, the urgent need for graduates was minimized. ***"

* * * * *

"When the delay occurred in construction of Fort Belvoir facilities, coordination between responsible Army elements established that somewhat similar equipments were being installed in base camps in the combat area and were being maintained under contract by civilian contractors using mainly third country nationals. It thus became more economical to have the O and M [operation and maintenance] of these IWCS equipments placed under the base maintenance contracts. The training delay could then be tolerated since the need then became one for a capability to train military personnel for contingency use and assist in the management of the contractors."

DOD's statement indicates that, by the time the Engineer School facilities were ready, the need for these facilities may have been greatly reduced in that DOD's thinking had changed as to the desirability of replacing contractor operation and maintenance personnel with military personnel.

APPENDIX VI

PRINCIPAL OFFICIALS RESPONSIBLE
FOR ADMINISTRATION OF
ACTIVITIES DISCUSSED IN THIS REPORT

<u>Tenure of office</u>	
<u>From</u>	<u>To</u>

DEPARTMENT OF DEFENSE

SECRETARY OF DEFENSE:

Melvin R. Laird	Jan. 1969	Present
Clark M. Clifford	Mar. 1968	Jan. 1969
Robert S. McNamara	Jan. 1961	Feb. 1968

DEPUTY SECRETARY OF DEFENSE:

Kenneth Rush	Feb. 1972	Present
Vacant	Dec. 1971	Jan. 1972
David Packard	Jan. 1969	Dec. 1971
Paul H. Nitze	July 1967	Jan. 1969

ASSISTANT SECRETARY OF DEFENSE

(INSTALLATIONS AND LOGISTICS):

Barry J. Shillito	Jan. 1969	Present
Thomas D. Morris	Sept. 1967	Jan. 1969
Paul R. Ignatius	Dec. 1964	Aug. 1967

DEPARTMENT OF THE ARMY

SECRETARY OF THE ARMY:

Robert F. Froehlke	July 1971	Present
Stanley R. Resor	July 1965	June 1971

ASSISTANT SECRETARY OF THE ARMY

(INSTALLATIONS AND LOGISTICS):

Dudley C. Mecum	Oct. 1971	Present
Vincent P. Huggard (acting)	June 1971	Oct. 1971
J. Ronald Fox	June 1969	June 1971
Vincent P. Huggard (acting)	Mar. 1969	June 1969
Dr. Robert A. Brooks	Oct. 1965	Feb. 1969

Tenure of officeFrom ToFAR EAST COMMANDS

COMMANDER, MILITARY ASSISTANCE

COMMAND, THAILAND:

Maj. Gen. L.T. Seith	May 1969	Present
Maj. Gen. H.D. McCown	July 1967	May 1969
Maj. Gen. R.G. Stilwell	Aug. 1965	July 1967

COMMANDER, MILITARY ASSISTANCE

COMMAND, VIETNAM:

Gen. Creighton W. Abrams	July 1968	Present
Gen. William C. Westmoreland	Aug. 1964	June 1968

DEPARTMENT OF STATE

SECRETARY OF STATE:

William P. Rogers	Jan. 1969	Present
Dean Rusk	Jan. 1961	Dec. 1968

UNITED STATES AMBASSADOR TO

THAILAND:

Leonard Unger	Sept. 1967	Present
Graham Martin	Aug. 1963	Aug. 1967



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