Study and Evaluation of Countermeasures Activities (SECMA)
Vol. 2: Intelligence

Technical Report

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June 1982

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IN ACCORDANCE WITH
O.C.D. 5100.1-B & EXECUTIVE ORDER 11509
STUDY AND EVALUATION
OF COUNTERMINE ACTIVITIES
(SECMA) (U)

GROUP A
DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS
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SUBJECT: Study and Evaluation of Countermine Activities (SECMAC) Volume 2 of 7 Intelligence

Commanding General
United States Army, Vietnam
ATTN: AVHGC-DST
APO 96375


2. In accordance with the provisions of the foregoing reference, the attached final report is forwarded for review and transmittal to Department of the Army.

3. Request one copy of the USARV and CTNCSRFPAC forwarding endorsement be furnished the Commanding Officer, Army Concept Team in Vietnam (ACTIV).

FOR THE COMMANDER:

[Signature]

NORMAN M. LEARY
CPT, AGC
Adjutant

REGRADED UNCLASSIFIED WHEN SEPARATED FROM CLASSIFIED INCLOSURES
FINAL REPORT

STUDY AND EVALUATION
OF COUNTERMINE ACTIVITIES
(SECMA) (U)

ACTIV Project No. ACG-61F

VOLUME 2 OF 7
INTELLIGENCE

Approved:

J. D. MITCHELL
Colonel, Infantry Commanding

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CONFIDENTIAL
STUDY AND EVALUATION OF COUNTERMINE ACTIVITIES

REPORT ORGANIZATION

VOLUME 1 - BASIC REPORT


VOLUME 2 - INTELLIGENCE

Description of enemy mines and mine logistics system. Evaluation of effectiveness of current intelligence system in collection and dissemination of mine data.

VOLUME 3 - MINE DETECTION

Evaluation of current hand-held mine detection equipment and other mine detection systems and concepts (infrared, photography, Georadar, and Russian detector).

VOLUME 4 - MINE DETONATION EQUIPMENT

Evaluation of current mine detonation equipment and new concepts.

VOLUME 5 - PROTECTIVE EQUIPMENT

Evaluation of field protective equipment for the armored personnel carrier M113 for blast and shock attenuation. Evaluation of explosive effects of mine munitions employed by the enemy in RVN.

VOLUME 6 - DENIAL OPERATIONS

Study and evaluation of methods for interdiction and/or neutralization of the enemy mine logistics and emplacement system.

VOLUME 7 - BOoby TRAP COUNTERMEASURES

Study and evaluation of the use of scout dogs, returned Viet Cong personnel, specialized training, and the Volunteer Informant Program to reduce booby trap casualties.

FILM REPORT

"THE OPERATIONAL ANTI-VEHICULAR MINE ENVIRONMENT"

Portrayal of environmental and operational conditions which must be visualized by participating agencies for an appreciation of the anti-vehicular mine problem in Vietnam.
AUTHORITY

Letter, Headquarters, United States Army, Vietnam (USARV), 7 August 1967,
Subject: Study and Evaluation of Counterinsurgency Activities (CIA)

ACKNOWLEDGEMENTS

The Army Concept Year in Vietnam is indebted to the following for their help
in the evaluation:

- Military Assistance Command, Vietnam
- United States Army, Vietnam
- III Marine Amphibious Force,
- 1st Marine Division
- 1st Infantry Division
- 25th Infantry Division
- 9th Infantry Division
- 25th Infantry Division
- Americal Division
- 1st Logistical Command
- 525th Military Intelligence Group

PROJECT MANAGER

Colonel Edward J. Bielecki, CS

PROJECT OFFICER

Lieutenant Colonel Antero Makku, TI
This project involved a collection and evaluation of information concerning the enemy mining activities in the Republic of Vietnam (RVN) to identify vulnerabilities in the system, evaluate the effectiveness of current intelligence systems in RVN, and prepare a film report for the research and development community in the US to assist in future studies.

The enemy has established an efficient and extensive supply system for procuring hardware and raw materials both from out-of-country as well as in-country sources, with a heavy reliance on local production. Enemy mining activity is directed primarily against local water communications and fixed installations or used in support of terrorist activities. The timely reporting of mine information is frequently hampered by lack of adequate communications, lack of qualified linguists at the various levels of command, and by the complexity of the intelligence system in RVN.

It was recommended that the enemy mine warfare information developed in this study be used as a basis for further development of the countermine program; that a specific effort be made for continuous collection of enemy mine warfare information, that mine and booby trap publications be revised; and that newly assigned intelligence officers be given an orientation on the organization and functions of the intelligence systems in RVN.
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1. (c) INTRODUCTION

At the initiation of the Study and Evaluation of Countermine Activities (SECA) project it became evident that information pertaining to enemy mines, mine laying techniques, tactics, and logistical aspects of mine warfare was required. This information was available in several agencies, however, it was not available in a consolidated package. Therefore, the intelligence task of SECA was established to fill this gap and provide comprehensive, consolidated, and analyzed data to support the Study and Evaluation of Countermine Activities.

2. (c) OBJECTIVES AND SCOPE

The intelligence task was subdivided into the following objectives:

a. To collect the necessary information and data to define the enemy mine and booby trap system and to permit identification of any vulnerabilities in the system.

b. To evaluate the effectiveness of the current intelligence system for readily providing such information and data.

c. To prepare a film report for the research and development (R&D) community on the operational environment and the mine-countermine problems to assist in future studies and development of countermeasures.

3. (c) SOURCES

a. Information pertaining to enemy mine warfare hardware, techniques, tactics, and logistics was collected from the following agencies:

- Combined Intelligence Center, Vietnam (CICV)
- Combined Document Exploitation Center (CDEC)
- Combined Materiel Exploitation Center (CMXC)
- Combined Military Interrogation Center (CMIC)
- National Interrogation Center (NIC)
- National Chieu Hoi Center (NCCHC)
- National Police Directorate (NPD).

b. Information dealing with the effectiveness of the current US intelligence system was obtained by interviewing personnel of J2, Military Assistance Command, Vietnam and the intelligence centers listed in paragraph (c) above, 525th I2 Group, and the G2/J2's of the following US and Allied combat units:
III Marine amphibious Force Headquarters
1st Marine Division
1st Infantry Division
4th Infantry Division
9th Infantry Division
25th Infantry Division
2nd Marine Division
5th Special Forces Group
First Australian Task Force.

c. Preparation of the film report was accomplished in conjunction with operations of the 1st, 9th, and 25th Infantry divisions, the 11th Armored Cavalry Regiment, the 1st Logistical Command, and the National Police Directorate.

4. (c) METHODOLOGY

To define the enemy mining system and to identify vulnerabilities in the system, it was determined that a combination of qualitative and quantitative data was required. A survey of material in the files of the major intelligence centers in the Republic of Vietnam revealed that numerous studies, interrogation reports, and captured enemy documents were available. Statistical data in this material, however, was limited. A mine incident reporting system, established by USAV on the Army Concept Team in Vietnam request, had produced limited input from field units for the period September 1967 - February 1968, but the report form was redundant and did not provide meaningful data. A Vietnam Casualty Statistics Report by the USAV Surgeon provided some data on wound locations, and the Combat Operational Loss and Expenditure Data - Vehicles (COLD-V), prepared by the COLD-V Data Collection Center at Hq, USAV, provided loss rates by vehicle types due to various causes for the period 1 April - 31 October 1967. However, it was evident that additional sources of data should be established to provide a clearer definition of the problem. To acquire additional qualitative data, a plan of research was developed by formulating Essential Elements of Information (EEI), and a system was established which would permit SEAM representatives to interrogate knowledgeable Chieu Hoi returnees and former members of enemy sapper and guerrilla units. Due to difficulties encountered in locating these individuals, the Military Intelligence Detachments (MID), who interrogated enemy personnel in the field, were requested to inform SEAC immediately when such personnel were available. Additionally, to provide all statistical data on each mine incident, a new mine incident report was developed and distributed to all field units for submission. Reports, studies, and other data containing mine warfare material were evaluated and compared with the information obtained from other sources to establish the reliability and the value of the information. Gaps in material collected were filled by requests for additional information and by interviewing Chieu Chans and former members of sapper and guerrilla units. Information pertaining to intelligence systems was obtained by interviewing intelligence officers at various levels of command.
(G) Objective 1 - To collect the necessary information and data to define the enemy mine and booby trap system and to permit identification of any vulnerabilities in the system.

5. (G) KEY HUMAN AND TECHNICAL ASPECTS

   a. The Army of North Vietnam's mine warfare doctrine closely parallels that of the Chinese Communist army, although it is heavily influenced by past guerilla warfare experience in VN, including that sustained during the French-Viet Minh war. Offensive mines have not been encountered in VN. The mining activity is exclusively nuisance-oriented. Standard mines are used primarily as anti-vehicular weapon, while booby traps are employed.

   b. The enemy employs a limited number of standard factory-produced mines, most of which originate in the Soviet Union or Communist China. The majority of mines employed, however, are locally fabricated in village or district command areas. The enemy philosophy is to acquire as much as possible of the materials needed for production from US and RVN sources. Approximately 90 percent of all mine components are US origin and locally modified for enemy use as mines, sabotage devices, or booby traps. In addition, almost 95 percent of the local production is directed for fabrication of booby traps rather than mines.

   c. Mines emplaced to destroy vehicles are activated by one of three methods:

      (1) Pressure activation, either simple mechanical or electrical, is used for unattended mines, while command detonations are exclusively electrical.

      (2) Trip-wire activation is most frequently used for booby traps, although pressure activation is sometimes used where heavy traffic may be expected.

      (3) Pressure release devices are used with souvenirs and other objects which invite curiosity and exploration.

   d. Artillery shells and small bombs are usually used for anti-vehicular mines. Hand grenades, S5U-3/5 bomblets, and explosives salvaged from large bombs are used in antipersonnel mines and booby traps. Fixed directional mines appear to be increasingly favored items of hardware. Due to their
devastating fragmentation effects and easy handling, directional mines have
great tactical value. As more roads receive ambush topping, fixed directional
mines have been employed from the shoulder. Due to extensive use of inland
waterways for transportation of troops and supplies, the enemy is placing
emphasis on mining of rivers, canals, and harbor facilities. Water mines as
well as fixed directional mines are fabricated locally from materials
available. Additionally, the enemy is using more and more bombs as mines
and larger charges per device while at the same time reducing the amount
of pressure required to initiate detonation.

6. (C) ENVIRONMENTAL ASPECTS OF ENEMY MINE WARFARE

The area of operations is characterized by four distinct geographical
regions: The highlands located in the north and central portion of the
country, and constituting almost 50 percent of the RVN land mass; the
plateaus of the central highlands; the coastal plain; and the Mekong Delta,
as well as the tropical climate characterized by the southwesterly and
northeasterly monsoons. The movement capability of the NVAF is drastically
reduced by rugged terrain, dense jungle vegetation, swamps, and scarcity of
road and railroad nets in RVN. In addition, most of the existing roads
are narrow, dry-weather, and loose-surface roads, becoming unusable during
the monsoon seasons. Any of the vital railroad bridges destroyed during
the early stages of the war rendered the main rail line, extending from the
Mekong Delta to the Demilitarized Zone (DMZ), practically useless. Insuf-
ficient road nets and the generally poor condition of roads restrict ground
movement to the few lines of communications (LOCs) which are usable. These
LOCs, however, are extremely vulnerable to the enemy's ambush and mine
activities, requiring friendly forces to maintain constant road surveillance,
to conduct time-consuming mine detection and removal operations, and to
depend heavily on transportation by air. Consequently, the enemy continues
to concentrate his main effort primarily on the LOCs, to include inland
waterways.

7. (C) ENEMY MINING TACTICS

The enemy considers the ambush a major tactic in his conduct of mobile
warfare. The ambush takes advantage of the dependence of RVAF on the use
of roads, and the enemy's knowledge of terrain, cross-country mobility,
good intelligence, and camouflage techniques. In offensive operations, the
enemy employs an effective network of observation posts and defensive positions
located throughout his operational areas, primarily prepared to cover the
natural avenues of approach into his positions. In both ambush and defensive
operations, the enemy relies heavily on the use of mines and booby traps.
Large-scale employment of mines and deliberate mine-laying techniques, which
are normally used to support major tactical operations, have not been en-
countered in RVN. Instead, a limited number of mines, well
tailored to fit the tactical plan, and lastly methods of mine laying are common
to the enemy offensive and defensive operations. In addition, special mining
8. (C) ENEMY ORGANIZATION FOR MINING ACTIVITY

a. The primary responsibility for employment of mines and booby traps within the enemy organization rests on sapper and engineer units. Also, the local guerrillas are fully qualified in the employment of mines and booby traps in harassment and terrorist activities. In addition, civilians in enemy-controlled towns and villages frequently provide the transportation and labor for mine-laying activities under the supervision of sapper and/or engineer personnel.

b. The organization, equipment, and attachment of a sapper unit is dependent on the location and mission of the unit. Usually, each military district has a sapper battalion and each province or larger town has a company. Within the enemy division, there is some degree of standardization in the engineer structure. With some exceptions, there is one engineer battalion per division and one company per infantry regiment. There is no standard Table of Organization and Equipment (TOE) for sapper and engineer units. Organization, equipment, and weapons are based on current tactical requirements. Specifically, organic transportation is very limited, and most of the food, ammunition, explosives, and tools must be obtained from various supply points in the area or confiscated from the civilian population.

9. (C) LOGISTICAL ASPECTS OF MINING WARFARE

a. Material flow and personnel infiltration routes from the North to the South closely parallel each other. The infiltration movement initiating in North Vietnam is accomplished by vehicle, rail, and foot transportation, with the latter being the primary mode. Once the final communication-liaison station in North Vietnam has been reached, the infiltrators depart either for Laos or RVN through the Demilitarized Zone (DMZ). An average of 45 days is spent traveling through Laos. The traveling is similar to that in North Vietnam, only terrain and living conditions are more rugged. Vehicles are occasionally used for transporting supplies toward central RVN. Personnel are landed at various points along the route, and the supplies are dispersed along the route. Supplies are mainly infiltrated into the Corps Tactical Zone (CTZ) areas. Movement of both personnel and supplies in RVN is accomplished mainly in corridors of movement, rather than specific routes, which the selection of trails is constantly changed. Corridors exist in each of the four CTZs. Supplies are moved within these corridors by foot, a host of the ordnance infiltrated into RVN is brought in by sea. Most of this sea infiltration occurs in the IV CTZ area. The gunrunning ships from North Vietnam come in on the lunar high tides under cover of darkness, spend two to three days in port, being off-loaded, and then depart out to sea and international waters. Within the various CTZs, there are specific transportation units whose sole mission is the receiving of sea-infiltrated goods; they
are different from those transportation units whose mission is inland transportation.

b. The overall movement of supplies to the enemy, both out-of-country
and in-country, is handled by the Postal, Communication, and Transportation
Committee, which effectively supervises the various Rear Services organiz-
ation elements engaged in the procurement and transportation of supplies
from the storage depots to the using units. The enemy has established an
area supply system to serve all of his combat units. Any unit in the area
is authorized to draw supplies directly from the nearest depots scattered
throughout the country. Close control of all items of supply is maintained,
and the procedures of resupply do not differ greatly from those used by the
US Army. Specific transportation units are responsible for the transport-
ation of supplies from the base areas to the supply depots.

c. The base area concept is the foundation of the supply system utilized
by the enemy. A base area is found only in areas of Viet Cong control.
In addition to their primary function of supply, base areas are often used
as sanctuaries and political headquarters, especially as district, province,
and military region political headquarters. Enemy structures in the base
area range from simple lean-to shelters to intricate tunnel complexes.
Every effort is made to blend in with the local surroundings. Caches are
normally mined and booby-trapped in case of emergency evacuation. The enemy
takes maximum advantage of underground facilities as protection from surveillance,
artillery, and airstrikes.

d. Munitions shops (see paragraph 12, Annex A for detailed descrip-
tion of shop operation) exist at four levels of command: Region, Province,
District, and Village/Inter-village levels. They are stationary installa-
tions, with the majority being able to displace and relocate very rapidly.
These facilities are either underground or in extremely well camouflaged sur-
face structures. They are widely dispersed throughout RVN, which affords
them good passive protection. They are normally guarded by an element
ranging from a squad up to an entire battalion. Local protection is afforded
d by dispersion throughout an area of the various elements of the workshop.
The level of the workshop dictates its output and items manufactured. All
levels produce mines, although village/inter-village shops produce only
antipersonnel mines and booby traps. Most available information concerns
the district workshops. Although there are no fixed factory characteristics,
the typical organization of district workshops appears to be as follows:
managing board, planning section, administrative section, supply section,
technical production section, and the production section composed of seven
component production cells. The Village/inter-village cells provide
support primarily to Local Forces and guerrilla units. They are composed
of a chemical section, a casting section, and a fitting section. Training
of munitions production workshop personnel is accomplished mainly in
North Vietnam. Cadres are infiltrated into RVN, where they provide guidance
to the local shops, as well as train local personnel in their skills with
apprentices and on-the-job training programs. Locally-procured raw materials
are the main source of supply for the Viet Cong. Captured munitions from
the battlefield and recovered FWMAF dud munitions are a large source of
raw materials. Additionally, some raw materials are infiltrated from outside of SVN. Strict management controls are enforced by the enemy. The production is divided into three categories: production line, job shop, and bench shop. Tools are normally locally procured, although they are sometimes infiltrated into country. Quality control, inspection, packing, and packaging is the local producer's responsibility. Although quantitative production data is scarce, it is evident that the enemy relies heavily on in-country production to supplement munitions originating out-of-country. The majority of mines and almost all booby traps are locally manufactured.

10. (c) FINDINGS AND CONCLUSIONS

a. Enemy Hardware and Techniques of Employment

(1) The enemy utilized nuisance type mines, which was random, flexible, and responsive to tactical situations.

(2) Extensive enemy minefields have not been encountered in SVN.

(3) The enemy has employed limited numbers of factory produced mines, and he may receive any item of hardware found in any Communist Bloc country inventory.

(4) The enemy has relied heavily on his in-country production capability, and the majority of his mines and booby traps have been homemade.

(5) As such as 95 percent of the local production effort has been diverted towards the fabrication of booby traps.

(6) The enemy exploits every conceivable source of supply, and the majority of raw materials for local production has come from US and Army of the Republic of Vietnam sources.

(7) The enemy's primary actuating systems were mechanical pressure, pressure-electric, and electrical command. These actuators are reliable, easily made, and readily available. There is no reason to expect any noteworthy change in their use.

(8) Elaborate and complex actuators using delays, timing systems, and chemicals were used mainly in sabotage activities.

(9) Artillery shells and small bombs were used with little modification as anti-vehicular mines.

(10) The enemy tended to use increasingly larger charges per weapon, while reducing the amount of pressure to initiate detonation.

(11) The availability of explosives and other ingredients required for explosive device production is abundant enough to allow the enemy to increase the amounts of explosive in each charge.
(12) The use of less pressure to initiate detonation indicates the enemy's desire to assure destruction of vehicles with the lightest ground pressure.

(13) As long as the rate of casualty production by means of inexpensive, easily procured, rapidly emplaced IED mines and booby traps is profitable, the enemy will continue to use his current employment techniques. Only when mining and booby trapping become unprofitable, requiring unacceptable expenditure of time, materials, and personnel, can he be expected to change employment techniques.

(14) Mixed directional mines may be expected to be encountered more frequently as supply and manufacturing facilities are adequate to maintain effective production of these items.

(15) Due to the extensive use of rivers, streams, and canals by VMF, enemy mining of waterways has a significant priority. Production of watermines, which are made from in-country supplies, can be expected to continue in increasing numbers.

b. Environmental Aspects of Enemy Mine Warfare

(1) VMF ground movement was heavily restricted to the few usable roads that exist in the area of operation. These roads were the primary objectives of the enemy's ambush and mining activities.

(2) VMF were required to maintain constant surveillance, and to conduct time-consuming mine clearing operations along the roads. Rout surveillance, as well as the mine detection and removal efforts, have often proven ineffective, resulting in casualties to personnel and vehicles and a slowing down of movement of troops and supplies.

c. Enemy Mining Tactics

(1) The enemy used hasty mine laying techniques by employing single mines or groups of mines rather than large, standard, deliberately emplaced minefields.

(2) The enemy employed mines and booby traps in all types of operations to include anti-heliborne and anti-riverine operations.

(3) Neither a pattern in selection of targets nor specific criteria in targeting were observed in the enemy's mine activity.

(4) The heaviest density of mining activities was found along lines of communication and in the vicinity of fixed installations of various types, such as airfields, logistical installations, and docking facilities.
4. Army Organization/Intelligence

(1) Organization, the men, and equipment, as well as the equipment of support and engineer elements to larger supported units or areas were based on current tactical requirements rather than any fixed organization basis. Organic transportation of these units is extremely limited.

(2) Most ammunition, explosives, and engineer tools were obtained from various supply points established by the rear services sections of the military regions or confiscated from the local populace.

(3) Special units were charged with the responsibility for handling of explosives, conducting demolitions and terrorist activities, as well as spearheading infantry elements against selected targets.

a. Logistic Impects of Operations

(1) External supply of munitions to include complete mines, explosive devices, and materials were infiltrated by North Vietnam through the N. V., Laos, and Cambodia and by sea infiltration along the coasts.

(2) The overall movement of supplies to the enemy, both out-of-country and in-country, was handled by the Postal, Communications, and Transportation Committee.

(3) The base area concept was the foundation of the supply point system utilized by the enemy.

(4) Numerous depots, supply points, and caches were dispersed throughout the country to be utilized by any unit assigned, operating, or moving through that area.

(5) Munitions shops existed at four levels of command from Region to Village/Inter-village level and were highly mobile, well camouflaged and concealed, and had a security element provided.

(6) Trained supervisors and technical personnel were infiltrated from "N" for employment in munition shops.

(7) The main sources of raw materials for the munition shops were locally procured items, items available through clandestine supply channels, captured or recovered munitions from the battlefield, and F.A.M. and munitions.

(8) The majority of mines, and almost all booby traps, were locally manufactured.
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11. (C) INTRODUCTION

That the enemy mine warfare infrastructure developed in this study be used in conjunction with the rest of the J-6 report as a basis for further development in the countermine report.

3. (C) Objective 2 - To evaluate the air defenses of the current intelligence system for the ability to provide information required to identify the enemy mine and booby trap system.

17. (C) CONCLUSION

The intelligence system in J. consists of several unique organizations, both military and civilian, parallel and interlocking, each other at certain levels of command and echelons of civilian government (see Figure 1). The multitude and complexity of these organizational stems from the fact that not only J and N, but all other free world military assistance forces participating in the war effort in J are involved. From the counterintelligence activities viewpoint, only J and Vietnamese intelligence organizations are briefly discussed in the following paragraphs.

13. (G) JOINT INTELLIGENCE SYSTEMS

There are three major parallel intelligence systems, which can be further broken down into various channels and agencies:

a. US military and civilian intelligence agencies
b. Government of VN Intelligence agencies
c. Armed Forces of VN Intelligence agencies.

14. (C) US INTELLIGENCE ORGANIZATIONS

US intelligence channels consist of three major military and two civilian intelligence organizations:

a. The Office of Special Assistant to the Ambassador (OSA), as a part of US embassy in VN, has its widespread intelligence network found at various levels of civilian government and joint military/civilian establishments.

b. A rather new, large-scale system, the Civil Operations and Revolutionary Development Support (CORDS), with its Intelligence Coordination and Exploitation for attack on VC Infrastructure (ICAE, recently renamed "Phoenix") program, is a remarkable intelligence organization extending from CVSC to the District and Sub-district level. The Phoenix assistant at Vietnamese regional headquarters is a military man (usually a LTC) at Province level, a coordinator is appointed, and may be either an OSA or military representative, and may also be the Sector Intelligence Advisor.
At district level the Senior J3 Advisor is the Phoenix coordinator. His assistant (LD) is physically located at the District Intelligence Operations Coordinating Center (DIOC).

c. Assistant Chief of Staff for Intelligence (J2), MACV controls the three major military intelligence channels, to include:

1. US Army, Vietnam
2. Office of Special Intelligence (OSJ), 7th Air Force
3. Office of Naval Intelligence (ONI), US Naval Force, Vietnam (NANG-V)

d. The US Army, Vietnam, major intelligence sources include the following agencies at various levels of command:

1. G2, USARV
2. G2, III MAF, IFFV and IFFV
3. G2, Divisions
4. S2, Brigades and 5th Special Forces Group
5. S2, Battalions.

e. A Military Intelligence Detachment (MID) providing operational support has been attached to the agencies listed in para (4) (a) through (4) (c) above as well as to each separate brigade. Additionally, two major intelligence agencies, the 525th I Group and the 506th Radio Research Group are under the direct operational control of the J2, MACV. Aerial photographic reconnaissance support to the MACV and major subordinate commands is provided by the 1st MI Battalion (A.S.). The 525th I Group with its five MI battalions in the field provides counterintelligence and collection efforts on an area basis to MACV and the District Military Command (D.M.C.). The 506th I Group is responsible for enemy and subversive collection. The 509th I Group provides extensive signal communications intelligence to the MACV and the subordinate commands. The responsibility of assisting the J2, MACV, in collection, evaluation, collation, and dissemination of intelligence information, both tactical, strategic, and technical intelligence, rests on the following intelligence centers:

1. Combined Intelligence Center, Vietnam (CICV)
2. Combined Material Exploitation Center (CMEC)
3. Combined Document Exploitation Center (CDEC)
4. Combined Military Interrogation Center (CMIC)
These combined elements, consisting of both JS and RVN representatives, maintain a close top-level coordination and exchange of information among all US, National RVN, and RVN intelligence organizations.

15. (c) GOVERNMENT OF RVN INTELLIGENCE ORGANIZATIONS

Government of RVN agencies include the General Political Warfare Department (GWPD), the national police organization, with its elements extending throughout the RVN echelons, and the National Chieu Hoi organization. The major elements and functions of these organizations include:

a. General Political Warfare Department of the National Government supervise counterintelligence effort through military security service (MSS). In other words, the CI effort is not a responsibility of JS for the RVN as it is for the US Army.

b. The special branch of the National Police is an intelligence organization sponsored and advised by OSA and responsible for operating province interrogation centers (PICs). The primary duty of the special branch is to attack the RVN infrastructure, and it is designed to interrogate high-level infrastructure members.

c. The national Chieu Hoi Center (NCHC) in Saigon, as well as the Provincial Chieu Hoi Centers, comes under the operational control of the National Chieu Hoi organization. Again, high level and most knowledgeable returnees (Ho Chi Minh) are processed and interviewed at the NCHC before their return to provincial Chieu Hoi Centers.

d. The province Intelligence Coordinating Committee (PICCo) at the Province Headquarters is a joint activity including representation from the National Police, Military Security Service (MSS), JS Agency for International Development (USAID), OSA, and RVN, as well as US Intelligence coordinators and advisors.

e. The district Intelligence Operations Coordinating Center (DIOCC) at District Headquarters is another joint establishment including JS and Vietnamese military and civilian representatives. The important thing at Province and District level is the fact that JS and Vietnamese intelligence and operations personnel, both military and civilian, are located in close proximity to each other.

16. (c) RVN MILITARY INTELLIGENCE ORGANIZATIONS

a. Armed Forces of RVN agencies are organized generally along the same line as the US Army intelligence agencies at MACV, PAVN/III LAF, division, and brigade levels. The Joint General Staff (JGS) is the equivalent of MACV, and the Corps is equivalent to PAVN/III LAF in JS organization. In addition to controlling a number of divisions, the CG of the 572 has an area responsibility consisting of one or more military regions. Likewise, each division has an area responsibility for a Division Tactical Zone (DTZ) consisting of one or more sectors (provinces). Sectors are divided into several Sub-Sectors (districts). At the Sector level there is a Regional Force...
Intelligence Platoon (GIP) and an Intelligence Squad at Sub-Sector level providing intelligence support for Headquarters at both levels. There is a US liaison and advisor representation at Corps, Sector, and Sub-Sector Headquarters. Additionally, the Sector Headquarters (military) is colocated with the District Chief's Headquarters (DIOCS), providing a direct contact with National Government, as well as US civilian agencies (OS, USC) found at the same levels of command. Parallel to the JSC-OTJ-DTJ - Sector - Sub-Sector channel is the military Security Service (JS) organization, which provides counterintelligence effort to the J2, JCS through the General Political Warfare Department of the National Government. Under the direction of USC, the military Security Service is established at Corps level (Regional Office), Sector level (field Office), as well as sub-Sector level (Resident Office). J2 counterintelligence is linked with a VI counterintelligence at sub-level of command. Additionally, the Vietnamese 924th Support Group provides an extensive (covert) intelligence collection effort to the J2, JCS. Coordination between US intelligence agencies and the 924th Support Group is provided by 525th MI Group.

b. As a part of the A\m intelligence organization, there are five Combined Interrogation Centers (CIC) at the Corps level in the following locations: Da Nang, Da Nang, Pleiku, Dien Bien Phu, and Gia Voi. US Air Force (USAF), representing at the same time the US Army, maintains a team at each of these CICs. Additionally, Combined Military Interrogation Center (CMIC) at ARV level maintains a similar team in the CIC in Gia Voi.

17. (c) OPERATION OF US MILITARY CHANNELS

A piece of information originating from a US military source at the lowest level of command is reported through the normal intelligence channel from the battalion all the way up to the J2. AIC or provided that the information concerned is of J2 interest. As a normal standing operating procedure, the information of only local tactical value is not dispatched to any higher headquarters than is necessary. This procedure eliminates over-taxing the communication facilities and overloading higher headquarters with a great volume of secondary information which is not of their interest. In contrast, highly valuable tactical, strategic, or technical information is immediately submitted, usually in the form of a spot report, through channels to the highest level of command by means of telephone, teletype, or radio communication with the precedence deemed appropriate. The information dispatched in the form of a spot report is still confirmed by a detailed written report. A spot report may be covered in a daily intelligence summary. The information is not sent laterally to adjacent units, and other interested agencies. A great effort is placed on the use of expeditious, timely reporting techniques which are occasionally imperiled by lack of, or poor communication. Prisoners of war (POW) are not held at brigade or division level collecting points any longer than is necessary for interrogation before they are turned over to the Vietnamese Combined Interrogation Centers (CIC). Should combat units later desire additional POW information, they have access to the CICs or they may request additional information through intelligence channels. In case a new piece of equipment, such as a VC mine of new design, is discovered by one of the US combat units, it is immediately
reported to the technical intelligence agencies at JACV level (CENTCOM) which, in turn, send technical intelligence experts to the spot or ensure that the item concerned is evacuated to an installation where the preliminary technical research can be initiated. Interview of CENTCOM personnel reveals that mine reporting procedures are not uniform, and in many cases the reports are inadequate. Lack of details makes it extremely difficult for technical intelligence experts at CENTCOM to properly evaluate the mine based upon the report. Even if a mine has exploded, valuable information can still be gathered if the area and mine fragments are properly searched. On the other hand, some mine incident reports from combat elements to JACV have been submitted very quickly in the past.

18. (C) OPERATION OF ARVN INTELLIGENCE CHANNELS.

The flow of information from the lowest levels of command to the J2, JCS, follows very closely the same pattern and procedures which are used in the US Army, Vietnam. The number of sources of information available to ARVN units is usually greater than those available to the US Army, since the major commands (Corps and Division) have an additional area responsibility and the ARVN units do not experience language problems in dealing with their own civilian populace. The exchange of information between the US and ARVN units is generally very good at all levels of command. Occasionally, the shortage or lack of qualified interpreters, interrogators, or translators creates a language barrier resulting in misunderstanding, delay, or perhaps even loss of information. The establishment of joint headquarters, such as province and district headquarters, as well as operation of joint elements, such as combined interrogation centers, has reduced the language problem to the minimum. The timely exchange of information is further enhanced by assignment of US liaison and advisor personnel to practically all headquarters in the ARVN organization.

19. (C) OPERATION OF US AND VIETNAMESE CIVILIAN CHANNELS.

The CORDS (Phoenix), CGA, National Police, and Chieu Hoi organizations are all geared around the Vietnamese Government at national, regional, province, and district levels. They are physically located within the same area, occasionally in the same buildings, and they are thoroughly integrated with the government agencies by liaison or advisor-type representation. Because both US Army and ARVN are represented at the same joint headquarters, the information originating from the civilian sources at the village and hamlet levels is readily available for evaluation and placement into the military intelligence channels to be used by higher echelons. In addition, the unique organization of these joint headquarters facilitates a rapid lateral dissemination, to include military units operating within the boundaries of the district or province. The civilian intelligence service is primarily concerned with information of a political and economic nature. Reporting through civilian channels is usually extremely slow because there is very seldom a landline telephone communication between widely separated centers of population, and radio communication is at the mercy of unstable atmospheric conditions. The flow of intelligence is further slowed because the information originating from many civilian sources is usually inaccurate.
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containing rumors which require rechecking and confirmation from other sources. Regardless of these deficiencies, the flow of intelligence through civilian channels has proven highly valuable for military operations.

20. (C) PROBLEM AREAS IN INFORMATION FLOW.

Although the military and civilian intelligence systems in RVN appear to be adequate, and the flow of information from lowest levels to the highest, as well as the lateral exchange of information is normal, some problem areas affecting countermine activities are evident. The magnitude and complexity of these systems is a problem. It requires considerable time and experience for a newly assigned intelligence officer to learn the organization and mechanics involved. Before he reaches the desired level of proficiency, many opportunities for obtaining valuable information have been lost. To alleviate the problem, the 525th MI Group conducts MACV-directed four-day courses for officers assigned to the Phoenix (TOE) program, as well as three to four day orientation courses for their own personnel upon their arrival in RVN. In addition, a number of MI officers from various MIDs have attended these orientation courses, space permitting. For the same reason, coordination between the numerous agencies, specifically between various services and between military and civilian organizations at all levels of command, becomes a problem. Lack of adequate coordination, in turn, has an adverse effect on collection, evaluation, and dissemination of information.

21. (C) CENTRALIZED SOURCES OF INFORMATION.

a. The limited number of TOE personnel in the battalion and brigade S2 sections prevents collection and maintenance of great quantities of detailed data pertaining to enemy mines and mine warfare. The lowest echelon capable of collecting a considerable amount of data is the division G2 section, supported by the Military Intelligence Detachment (MID). Although the Div G2 section has more qualified personnel available and more agencies ready for employment, the type of data collected is still limited to those needed for supporting day-to-day combat operation. The division G2 sections visited were interested in the location of enemy minefields, recurring mining incidents, location of ordnance depots, and munitions factories within the division area of interest, as well as types of mines used by the enemy. However, they were not interested in highly technical information, and this type of data was rarely collected at the division level. Primarily, the G2s were interested in the continuous collection, evaluation, and timely dissemination of enemy order of battle, disposition, movements, tactical plans, and anticipated local operations in the near future. Based upon availability of this information, as well as the tactical situation, the G2s then recommend to the CG appropriate counteractivities by combat elements or tactical air. Final approval of such recommendations and priority given to these requirements, however, depends on many other factors beyond the G2's control. Generally, munition shops were not high on the target priority lists. Data collection, evaluation, and dissemination at the FFV/III MAF/Corps level are
accomplished generally in the same manner, although available data is usually somewhat more extensive in quantity. All information and data gathered is finally centralized at the MACV level in the following combined elements:

1. Combined Intelligence Center, Vietnam (CICV)
2. Combined Material Exploitation Center (CMAC)
3. Combined Document Exploitation Center (CDEC)
4. Combined Military Interrogation Center (CMIC)

b. These intelligence centers have a sufficient number of highly qualified personnel, equipment, and facilities to accomplish thorough interrogations, translation, and research work in their areas of interest. For example, the US element of the Combined Military Interrogation Center (CMIC) receives interrogation of prisoners of war (POW) reports from all US combat units. The Vietnamese element of the CIC, which is in overall charge of the operation of the center, receives similar reports from all RVN units, National Police, National Interrogation Center (NIC), Military Security Service (MSS), and Province Headquarters. Documents are translated and exchanged between US and Vietnamese elements within the center. Both sides decide whether additional interrogation is needed. POWs brought into the center may be held in this facility up to four months to ensure a thorough interrogation by US and Vietnamese interrogation teams specializing in various areas of interest. If units or agencies have submitted a Special Intelligence Collection Requirements (SICR) answers to their questions are then sought in CIC by the interrogation teams specializing in the areas concerned. However, interviews of division and brigade G2/S2s revealed that few knew that submission of SICRs to MACV were authorized and even encouraged. Upon completion of extensive interrogations at CMIC a final report is written, edited, and disseminated to all units and agencies interested. Copies of these reports are also provided to other intelligence centers for their evaluation and use. Likewise, the CDEC concentrates its study and evaluation on captured and other types of documents received from all sources in RVN to exploit the information obtained. CDEC exploits all enemy equipment and material captured or found in the battlefield. This center actually performs technical intelligence functions in the areas of chemical, engineer, signal, ordnance, transportation, quartermaster, and medical fields. As a normal procedure, units capturing a new piece of equipment are supposed to make an immediate report to CDEC which, in turn, either sends a technical intelligence team to the spot or ensures that the item of equipment will be evacuated. Once all information that can be obtained and evaluated is correlated, it is disseminated in the form of a detailed report to all major commands and agencies concerned. Periodically, the description, functioning, and characteristics of the new equipment is added to the technical publication of these booklets, primarily the responsibility of the CICV, which is the final depository for all intelligence information received at J2 MACV regardless of its origin. In addition, CICV is the major J2, MACV research and production agency conducting extensive studies on
preparing detailed special texts and booklets in many areas of interest.

Material in centralized files, however, is not immediately identifiable nor readily available in proper form to support a variety of unforeseen study requirements, such as the S-Cam Project. The identification and logging of mine warfare material found in the files of the four central intelligence centers required a period of two weeks for five EM, and the research, study, and evaluation of material identified required approximately two weeks for two intelligence officers. A research problem was encountered because all documents at GICV were filed by log number instead of by subject heading. Since the files contain tens of thousands of documents, it was impossible to identify the specific documents that the researchers were looking for. Special studies and texts, however, were readily available for research purposes. CISC files can be searched by use of a microfilm retrieval system. However, since the GICV file contained 67,000 documents, and only one subject heading could be checked at a time, it required minimum of six to seven hours to run through all documents on the microfilm for any one heading. For a researcher looking for answers to many questions, the microfilm retrieval system was obviously much too slow. Frequent errors further slowed down the use of the microfilm retrieval system. However, for filling gaps in information collected from other sources, this retrieval system proved to be satisfactory.

22. (C) PUBLICATIONS.

Currently in Vietnam, nearly a dozen separate publications dealing with mines and booby traps are used at division level and below. These include DA field manuals, training circulars and pamphlets, USAMV information publications, CICV reports, and even division pamphlets. Special texts (e.g., ST 67-074, "Operation of VC Munition Shops") and other studies of similar nature are normally distributed in 30 copies each to IFPV and IIIFV, 15 copies to III MAF, and 5 to 10 per each division, depending on the strength of the division. Additionally, IIIs are distributed to CONUS agencies as deemed necessary. Consequently, much duplication, overlapping, and repetition is present in using unit reference material. In addition to these various booklets, a small (5" x 3½") informative card, USAV JTA 20-1, on mines and booby traps is distributed, "One to each US army member in Vietnam." Almost all booklets follow the same format. Hardware is illustrated and explained. The numerous configurations of explosive hazards favored by the enemy are graphically drawn. Many identical illustrations can be found in several different documents. Detection procedures are buried within discussions of hardware. Nonexplosive devices receive as much attention as explosive devices, while in actuality, explosive devices are now used almost exclusively by the enemy. The size of these documents varies from the standard size field manual to the 5 x 3½ inch card issued by USAV. Neither the booklets nor the card are prepared on any material which is water-resistant which leads to rapid decay in the wet environment in SVN. Information booklets, such as, "VC/NVA Employment of Mines and Booby Traps," "VC/NVA Mine Indicators," and many others are distributed to the IFPV, IIIFV (5,000), and III MAF (3,000). Additional distributions are made as requested by the units. In addition, one or more copies of the more important booklets are distributed to approximately 50 CONUS and overseas agencies. Recent visits to the selected
US and FWMAF units by SECMA representatives revealed, however, that in spite of this distribution many squad and platoon leaders had never seen booklets originally intended to be distributed to the lowest level of command. One reason for this failure is the constant rotation of personnel. Additionally, some of the S2s and members of G2 sections were unaware of the extensive CICV publications available to support their operations, and the publications do not indicate how to reorder additional copies.

23. (C) AUGMENTATION BY SELECTIVE INTERROGATION

For exploration of all possible sources of information within a short time frame, an effort was made to identify knowledgeable Chieu Hoi returnees (Hoi Chanhs) and former members of sapper, engineer, and guerrilla units for additional interviews and interrogations. The National Chieu Hoi Center (NCHC) was requested to identify and locate suitable Hoi Chanhs and, likewise, the National Police to identify and locate former members of sapper, engineer, and guerrilla units in their custody at various Province Interrogation Centers (PICs). Generally this effort did not produce the anticipated results and very little, if any, new and valuable information was obtained. First of all, two weeks were required by the NCHC to provide a list of 15 names recommended for interviews. Initially, the NCHC failed to identify the location of these 15 individuals. After two more weeks, the NCHC was able to locate only 3 out of 15 individuals whose names had been submitted. The reason that the NCHC was unable to locate the individuals is the control system used. Once the Chieu Hoi returnees have been processed and interviewed at the NCHC in Saigon, they are returned to the Chieu Hoi Center in their home province, and from there they are released to go home. The National Chieu Hoi Center in Saigon does not keep a record of the individuals returned to their home province. As a matter of fact, the control of returnees is lost at this point. As a result of the enemy TET offensive (30 Jan - 10 Feb 68) the National Police were forced to detain thousands of suspects, which made it administratively impossible to provide the support requested. Additionally, it was found during the Hoi Chanh interviews that most of them were cooperative and talkative; however, only one or two were able to provide valuable information which was not previously known to the interrogators.

24. (C) FINDINGS AND CONCLUSIONS

a. The magnitude and operational complexity of the current intelligence systems in RVN caused valuable information to be lost during the period of time required by newly arrived intelligence officers to learn the organization and functions of these systems.

b. Coordination between military and civilian agencies, both US and Vietnamese, at all levels, created problems adversely affecting collection, evaluation, and dissemination of information.
c. Intelligence agents operating in thinly separated and isolated rural areas were imposed in their timely reporting of enemy activities because of extremely poor, or in some cases, totally lacking communications facilities.

d. Shortage or lack of interpreters, interrogators, and translators at various elements created a hump, barrier resulting in misunderstanding, delay, and perhaps even loss of information.

e. The limited number of TDC personnel in the S2 sections of the battalions and brigades provided collection and maintenance of quantitative mine warfare data at these levels.

f. Collection of highly technical data of enemy mine and demolition devices was centralized at the NSC level.

g. Some divisions failed to follow up on information concerning munition dumps and factories. This type of information was given a low priority and, at best, an air or artillery strike was requested by 02/02, with ground units used only on rare occasions.

h. Publications on mines and booby traps in NV were compiled by several different agencies, and were repetitious and overlapping. The lack of countermeasures for those publications issued for continuous use by field personnel resulted in the rapid decay of those items to a state of uselessness.

i. Only a few commands took advantage of the Special Intelligence Collection requirements (SICs) and many intelligence officers apparently were not aware of this information gathering technique.

j. Large quantities of valuable mine warfare material were centralized in the files of the four MACV intelligence centers but were not readily available to support special studies.

k. The control system used at the National Chieu Hoi Centers (NCHC), rendered the identification, location, and interviewing of selected Chieu Hoi returnees impractical.

It is recommended that:

a. MACV direct the 525th RI Group to expand the current orientation courses, and that all newly assigned intelligence officers be directed to attend these courses.

b. A specific effort be made by all major commands to collect continuously information of enemy ammunition dumps and munition factories by all means available, to include levying a requirement on the 525th RI Group battalions in direct support of the corps.
c. A study be conducted of line and booby trap publications. Below
2. level, used in Vietnam, individual unit publications should be eliminated.
The number of publications should be reduced to three:

(1) An extensive, standard size volume for use by research groups,
staff studies, etc., containing all material on mines or booby traps, e.g.,
technical information, photos, examples of their use, capabilities.

(2) A pocket size pamphlet for use by small unit leaders and commanders
containing relevant data which could affect a tactical situation; e.g., photos
of the current mines and booby traps in use, examples of VC line/booby trap
warning signs, precautions to take against them, and what to do if encountered
in the field. This document should be sturdily constructed to withstand
heavy field use.

(3) A small laminated card to be retained by each individual. It
should have a list of the main precautions to take in the field, and what to
do if a mine or booby trap is encountered.

C. Objective 3 - Prepare a film report for the R&D community of the opera-
tional environment and the mine-countermine problem to assist in future studies
and development of countermeasures.

26. (G) PURPOSE OF FILM

From discussions among members of ACTIV, 5.CIA, and MILITARY ASSIST-
ANCE COMMAND SCIENCE ADVISOR (KAMSA/JSM/JSMA), a consensus was reached concerning the difficulties which arose when members of the 5.I.S.R.
R&D community tried to develop new equipment and concepts for use in AVN when they did not have the opportunity to gain first-hand knowledge of the operational environment, the practices of the enemy, and the
types of activities in which US and FWNAF are typically engaged.

Considering the distance between CONUS and AVN, the difficulties inherent in
communications, and the unlikelihood that sufficient numbers of the CONUS
R&D community would ever have the opportunity to visit AVN for an extended
period of time, it was agreed that a film report on the operational mine-
countermine environment would be the most expeditious method to narrow the
time and distance gap between the soldier in the field, who is attempting
to detect and destroy enemy mines, and the scientists and technicians in CONUS
who are engaged in the development of equipment and techniques to assist
him.

27. (C) SCOPE OF FILM

In establishing parameters for the ACTIV film, it was agreed that there
would be little value in duplicating material already covered by others. It
was discovered that the enemy had a film that adequately depicted his mine and booby trap manufacturing and distribution methods (IAFP 533-10-6-5). It was also learned that the subject of enemy employment of booby traps and US countermeasures against booby traps had been adequately covered in DA TR-5-3866. Accordingly, it was determined that the SECMA film would deal with the problem of mines and the countermeasures employed by US and FWMAP. The content of the SECMA film was further defined to include the following four sections:

a. Two classes of vehicular land lines of communications (LOCs) and enemy mine employment on each

b. Typical enemy anti-vehicular mines classified according to their firing mode

c. Typical vehicular damage

d. Typical US countermeasures.

23. (C) DISTRIBUTION OF FILM

The film is being distributed separately through the US Army Articular Center (USARP), Long Island City, New York.
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(C) ANNEX A

ENEMY MINE AND BOOBY TRAP SYSTEM

SECTION I. (C) CURRENT PRACTICES AND TRENDS IN ENEMY HARDWARE AND TECHNIQUES OF EMPLOYMENT

1. (C) CURRENT ENEMY MINES AND BOOBY TRAPS

a. General

(1) Enemy mine warfare doctrine closely parallels that of the Chinese Communist Army, although it is heavily influenced by past guerrilla warfare experience in SVN as well as that acquired during the French-Vietnamese War. Extensive enemy minefields have not been encountered in SVN. The present practice of the enemy is to make use of numerous isolated mines and groups of mines for their nuisance value and to create casualties, fear, and over-cautiousness.

(2) The enemy employs a limited number of standard factory manufactured mines. Most of the standard type hardware originates from the Soviet Union or Communist China. The vast majority of mines employed, however, are locally fabricated in village ordnance shops. The VC philosophy is to acquire the majority of the materials needed for production from US and RVN sources. It is estimated that approximately 90 percent of all mine components are US origin and locally modified for enemy use as mines, sabotage devices, or booby traps. In addition, almost 95 percent of local production is directed toward fabricating booby traps rather than mines.

b. Mines, Booby Traps, and Associated Items in Current Enemy Inventory

(1) The enemy has a great variety of AP and AT mines, grenades, fuzes, firing devices, and miscellaneous associated items originating either from in-country or out-of-country sources in their current inventory.

(2) To date the hardware listed in Combined Intelligence Center, Vietnam (CICV) booklet "VC/NVA Employment of Mines and Booby Traps" and in Appendix 1 to this annex has been identified and is currently used by the enemy against Free World Military Assistance Forces (FWMF) in South Vietnam. The list indicates the type of devices and their origin as far as it can be determined. In some cases the list provides special names used for the item coined by combat forces in South Vietnam.

1. Reference 1
a. Fuzes and Firing Devices

(1) General. Most standard US and Soviet fuzes as well as many improvised firing devices are used by the enemy. The complexity of the fusing systems, their ingredients, and configurations, are limited only by the ingenuity of the man who constructs them. Since many of the enemy fusing systems are locally produced, it would be impossible to enumerate all of the variations of fusing systems found. In addition, one or more fusing systems may be found on any given piece of ordnance. For example, a mine or booby trap which is primarily designed to be command detonated may also have a pressure release fusing device.

(2) Types of Devices and Principles of Operation

(a) Initiating Actions. All standard initiating principles of fuzing used in US munitions can be expected to used by the enemy. Initiating actions in enemy fuzes include pressure, pull, pressure-release, and tension-release. Firing device internal actions include the usual electric, mechanical pull-friiction, chemical, and delay systems.

(b) Pressure Type Fuzes. Pressure type fuzes are probably the simplest to produce locally. The basic components are a firing pin, primer, and detonator. A pressure type fuse can be made from a nail, a rifle cartridge, and a block of wood. It may also be more complex with a firing pin retained in a cocked position by a key slot which, when depressed, releases the firing pin. The enemy make extensive use of modified mortar and artillery fuzes as pressure firing devices. One recently found fuse of this type is a CHICOM copy of the US M1A1 Antitank Mine Fuse (for details see Item #1, para 2, Appendix 1).

(c) Pressure Release Type Fuzes. Pressure release type firing devices, normally called "mouse traps," can be easily made from commercial mouse traps. The principle behind this type is that the removal of the weight releases the mouse trap device thus detonating the mine or booby trap. The most common pressure release type used by the enemy is the standard grenade fuzes with the safety pin removed and with some restraint on the handle to hold the firing pin in the cocked position. When the restraint is removed, the spring loaded firing pin strikes the primer exploding the booby trap. The pressure release type fuse is primarily used in modified booby traps such as bomblets, dud artillery rounds, and aerial bomb duds.

(d) Pull Type Firing Device. The most common pull type firing device used by the enemy is the pull-friction fuse similarly encountered in the VC and Chinese Communist stick grenades. When used as a mine or booby trap fuse, the delay element in the firing train is usually removed and replace with an explosive detonator which instantly detonates upon ignition of the fuse. The mechanical pull type firing device has not been used as commonly as the friction pull type device; however, an
increasing number of locally manufactured mechanical devices have been noted. A Chinese Communist or VC copy of the Soviet MUV firing device is apt to be used in the Republic of Vietnam, because the MUV fuse was widely used in Korea after Chinese Communist intervention.

(e) Pull-Release Firing Device. Pull-release firing devices are designed for activation by either an increase (pull) or decrease (release) of tension on a taut wire or vine. Extreme caution must be observed when encountering a taut wire or vine, as a cocked striker is always used in this method of initiation, thus any movement of the wire, vine, or explosive item may activate the striker detonating the device. Many pull type firing devices can be used as pull-release firing devices by attaching a trip wire or vine to the striker. Pull type devices rigged for pull-release action normally activate when the trip wire is broken.

(f) Command Detonated Fuzing System. All of the above mentioned devices can be command detonated. When so used, the fuzing system is activated by an extension of the trip wire when a suitable target presents itself. However, the most common method of controlled firing by the Viet Cong is by electrical means. This is accomplished by inserting an electrical blasting cap into the ordnance, laying a firing cable to a concealed position, and closing an electrical circuit (battery or hand-held generator) when the target comes into range. The Viet Cong use this method in all types of ordnance including underwater mines. Unconfirmed information indicates that the Viet Cong may possess radio controlled triggering devices that are activated by signal transmissions on selected frequencies.

(g) Time Delay Firing Devices. A clockwork delay type and a chemical delay type have been encountered in Vietnam. The clockwork delay is most common. One type of enemy clockwork delay firing device is made from commercial watches. Two electrical contacts are added, one to the hands and the other to the face of the watch. At the set time, the hand completes the circuit to an electric blasting cap. Small alarm clocks have also been used with the clock's alarm system wired to complete a circuit. Chemical delay devices used by French forces in Vietnam may still be used by the enemy. In addition, the following new devices have been encountered.

1. Chemical Delay Firing Device (New type, locally produced)
2. Chemical/Mechanical Release Sabotage Device

For description, characteristics, functioning and employment of the above devices see Items 2, 3, and 4, para 2, Appendix 1.

1. Reference 2
(h) Pressure/Electric Firing Devices. An increasingly common firing device is a pressure electric type used primarily with offset road mines. The explosive charge and power source (usually batteries) are buried in an offset position from the pressure electric firing device which is buried where vehicles are expected to track. The device and the firing wires are buried at a depth of two to four inches. The mine or explosive charge is detonated under the target's center of mass when activated by a wheel or track. Though relatively crude in construction, these devices are frequently used effectively.

b. Demolition Materials

(1) General. Any explosive item may be used as a mine or booby trap. A few of the main charges and some of the methods for their employment by the enemy will be discussed in the following paragraphs. It must be kept in mind that methods used for one type of ordnance, in many cases, are applicable to all.

(2) Grenades. Many small explosive items normally used as grenades and which give the appearance of grenades are used by the enemy as booby traps or antipersonnel (AP) mines. Both the striker release and the pull friction grenade fuses with the delay element removed are used in these small items. The following VC-manufactured grenades have been encountered.

(a) Modified Grenades
(b) Explosive Device Fragmentation Grenade
(c) Four-Sided Shaped Charge Hand Grenade
(d) Bursting Chemical Grenade (see Item 5, para 2, Appendix 1)
(e) Homemade AP Mine Booby Trap (see Item 6, para 2, Appendix 1)

(3) Artillery and Mortar Ammunition. All sizes of artillery and mortar ammunition are used by the VC as mines. They normally use the smaller projectiles for AP mines and the larger ones for antitank (AT) and antivehicular mines. Both types are equipped with any of the firing devices discussed in paragraph 2a above. Command detonation, using an electrical circuit, is often used with these types of mine charges. A typical example of this type demolition materials is the dud shell mine.2

1. Reference 3
2. Reference 4 and 5
(4) Bombs. The VC consider 20-pound fragmentation bombs excellent AP mines. The larger bombs (from 100 to 1000 lb) will destroy an US vehicle. The VC are using more bombs and mines and are using excessive amounts of explosive to destroy a target and, at the same time, are reducing the amount of pressure required for activation. A recently found bomb of this type used a converted US fragmentation bomb M83 (for details see Item 7, para 2, Appendix 1).

(5) Locally Manufactured Mines. The homemade or locally manufactured mines come in many sizes, shapes, and forms. They may be constructed of light metal, cast iron, cement, or explosives packed into bamboo tubes or wrapping paper. The intended use for mines normally governs their size, shape, and construction. The VC have produced a large number of watermines in addition to land mines that have also become more or less standard items.

(a) The fixed directional fragmentation mines are becoming the most widely used, locally produced VC mines. It has been noted since the first appearance of these mines in Vietnam that many variations have been developed to include the HDH mine series: HDH-2, HDH-3, HDH-5, HDH-8, HDH-9, HDH-10, HDH-40, and a directional mine similar to the HDH-2. They are also employing some of the captured US M138A1's. In comparing the various characteristics of these mines it is noted that, with the exception of the HDH-2, the other directional mine similar to the HDH-2, and the HDH C-40 which is basically rectangular in shape, these directional fragmentation mines differ primarily in their size, amount of explosive charge utilized, location of the fuze well, and means of support. Only the HDH C-40 mine, like the US M138A1, dispels its fragments from the convex face of the mine. It is assumed that, with the growing popularity of this mine, more variations will be developed. The principle behind these mines is that a large amount of fragments are propelled in a given direction by explosive force. The effective range is approximately 200 meters with a dispersion area of 16 to 20 meters at this range. These mines are normally command-detonated but have been found fused with other firing devices to include delayed fuzing. The VC directional mines have been used against troops, helicopters in landing areas, light vehicles, water craft, obstacles, and as a terrorist weapon. For the latest directional mines in the VC inventory, see Item 8, para 2, Appendix 1.

(b) There are many configurations of locally manufactured explosive items which have been discovered during recent US/Allied operations.

1. References 3 and 4
The construction of these explosives depends on the materials available and the intended purpose of the mine. For some of the latest devices of this nature, see item 9, para 2, Appendix 1.

(6) Foreign Manufactured Items. Any mine available in the Communist Bloc inventory may be introduced into the Viet Cong arsenal. Some of the foreign manufactured items in enemy hands include:

(a) Soviet AT Mines TM-41 and TMB-2
(b) CHICOM AP and AT Mine #8
(c) CHICOM AT Mine (Mine MIA1 - TNT)
(d) CHICOM Grenade
(e) Soviet AT Hand Grenade, Type RPG-6
(f) Soviet RPG-43 AT Hand Grenade
(g) Soviet Defensive Hand Grenade Type F-1
(h) Soviet RPG-40 Hand Grenade
(i) Soviet Offensive Hand Grenade, Type RG-42
(j) Soviet Grenade RGD-5
(k) CHICOM Anti-Tank Mine TM-41 (for details see Item 10, para 2, Appendix 1).

(c) Terrorist Devices. The Viet Cong have often employed terrorist explosives against US/Allied personnel and installations. These explosives have been covertly introduced into various US compounds and other places frequented by Americans and have been overtly delivered by terrorists against passing US vehicles.

Methods used by VC have been most imaginative: a foot locker addressed to US officer delivered to a BOQ, a hand grenade placed in front of the suspension system of a jeep, a fountain pen left on the floor of a vehicle, cigarette lighters of the Zippo type delivered to US advisors, and many others. One favored technique has been the placing of a grenade wrapped with various types of tapes in a vehicle gasoline tank where the gasoline

1. Reference 3
d. Summary. The Viet Cong have had long and successful experience in
improvising and employing explosive mines and booby traps, using whatever
material, manmade or natural, that is available. The great variety of
hardware and lack of technical sophistication employed in their manufacture
renders these devices dangerous and difficult to detect, destroy, or
neutralize.

3. (C) TECHNIQUES OF EMPLOYMENT OF MINES AND EXPLOSIVE DEVICES

a. General. This section will discuss, in order, antipersonnel devices,
antitank/antivehicular mines, and watermines.

b. Antipersonnel Devices

(1) General. There are two basic types of antipersonnel mines,
fragmentation and blast. The fragmentation mine depends on its ability to
cover a fairly wide area with high velocity fragments while the blast type
antipersonnel mine depends for its effect upon direct force developed by its
explosion. Further, there are three types of fragmentation mines, bounding,
fixed non-directional, and fixed directional. As with the other categories
of explosive devices found in RVN, the antipersonnel types are found in a
seemingly unlimited number of varying configurations, reflecting the amount
and type of materials available in that particular region and the ingenuity
of the mine builders. Though the configurations of the mines vary, the
techniques of employing them are fairly standard. Thus in RVN, the bounding
type antipersonnel mines are employed in a standard AP role as well as
the fixed non-directional types. In a large proportion of the areas,
antipersonnel mines are usually employed above ground or slightly underground
and rigged with a trip wire firing system (usually monofilament line stretched
three to five inches above ground level) in those locations where large num-
bers of PAVN personnel would tend to congregate. Fixed directional types
are being employed more often than others and are explained in para. 3a (3).
Enemy training documents stress that in more isolated or less populated
areas, pressure type mines should be emplaced, whereas in those areas of
dense population, controlled mines are to be preferred. These documents also
go on to say that in those instances where non-automatically (not command de-
tonated) employed mines are utilized, every means of informing the local
population concerning their location commensurate with security regulations
should be exhausted.

(2) Selection of Mine Location. Antipersonnel mines are most often
implanted in the following locations:

(a) Where personnel are confined to a narrow passageway
(b) On sides of dikes
(c) Where old trails cross or between trails
(d) Where the enemy has a good field of fire
(e) Landing zones
(f) Hedgerows
(g) Tunnel entrances
(h) Tree branches over-hanging a trail or roadway
(i) Main roadways into villages, hamlets

(3) Techniques of Employing Fixed Directional Fragmentation Mines

(a) General. Due to the tremendous energy release coupled with the devastating fragmentation effects, directional fragmentation mines have immense tactical value when utilized in an antipersonnel capacity. Any personnel without some protection are subject to the casualty producing effects of this mine up to 200 meters from the mine emplacement, depending, of course, upon the size of the mine used.

1. Selection of Mine Site. The selection of the mine emplacement site is determined with consideration for the firer's location since these directional mines exact the most devastating effects when command detonated. The firer chooses a site with an unobstructed field of vision of the target area and, in addition, the terrain features must be favorable so that any fire support can be effective. This firer's location or ignition point has usually been in defilade or in another area providing natural camouflage.

2. The Mine Site. The directional fragmentation mine has certain capabilities which have been considered by the enemy in emplacing this type of mine. Usually, a relatively flat area is chosen for the mine site, and in some cases, the mine has been positioned against a tree stump, wall, or other obstruction, thereby increasing the effectiveness of the mine. The mine's effective range, determined from training or past experience, regulates the distance from the mine to the target area. To enable the firer to detonate the mine at the most opportune moment, the mine location is determined by use of either natural or artificial reference points. The standard techniques of camouflage have been employed at the mine site using whatever materials that are available in the area.
3. Preparing the Mine Position. Once the firer's location has been chosen, each of whom has been assigned a particular task, carry out their mission. A four-man cell has been the typical structure. One person has ordinarily prepared the firer's location, another has concealed the firing wire leading from the mine to the firer's location, while another arms the mine. The fourth person has usually provided security for the group. The enemy has been quite reluctant to let more than one person handle the mine itself. Adherence to this procedure has been stressed to prevent any accident or mishandling which might result in premature detonation. At the chosen mine site, a certain procedure has been established. First the legs are affixed to the mine if they were separated during transit or the mine is hung from an elevated position by the attached "D" rings. Then the mine is pointed in the general direction of the intended target. The following guidelines of sighting, to compensate for fragment trajectory, have been stressed in enemy training documents:

- a. If the target is located 50 meters distant, aim directly at the target.
- b. At a distance of 100 meters, sight on a point 0.5 meter higher than the target.
- c. At a distance of 150 meters, sight on a point 1 meter higher than the target.
- d. At a distance of 200 meters, sight on a point 2 meters higher than the target.

During transit a wooden rubber plug is inserted in the detonator well. At the mine site the outfitter removes this plug and inserts the detonator in the detonator well and affixes wire to the detonator after the circuit has been checked with an ohmmeter.

4. Laying the Electric Detonation Wires

a. The Wire Itself. Any type of insulated wire is used for electrical detonation. The enemy has been instructed not to use barbed wire for firing wire, except in an emergency since intensified battery power is necessary, due to lower conductivity and the lack of insulation.

b. Laying the Wire. Once the firer's location and mine position have been determined, the person responsible for laying the firing wire begins his assigned mission. A stake is usually driven into the ground near the mine and the wire affixed to it with enough excess wire to connect it to the mine body later. The wire is affixed to the bottom of the stake at ground level and the wire is then reel ed out to the firer's location. Then, after digging a trench from the mine site to the firer's location, the wire is buried.
2. Camouflaging the Wire. The concealment of the wire has been considered to be as important as that of the mine. Training documents state that concealment of the wire must not hinder the firing of the mine and that the wire must not be destroyed by air and artillery strikes or detected by enemy raking procedures. The wire should be buried deeply in the soil and the dirt firmly packed. The enemy has also been known to attach another piece of firing wire to the mine body to act as a decoy. Other training documents indicate that the enemy should husk garlic and put it on the trench concealing the wire, on the mine itself, and around the firer location to prevent discovery by dogs.

3. Safety measures to be used when employing the DH series mines (according to VC training documents):

A. When not in use:
   (1) The detonator should not be fitted into the mine.
   (2) Fuses and detonators should be stored apart from mines and other explosives.
   (3) Special storage facilities should be provided for mines and explosives areas.
   (4) Mines and explosives should not be exposed to dampness, heat, or direct sunlight.
   (5) Sealing compounds should be used.

B. When employed:
   (1) A thorough inspection of the mine should be made just prior to employment to include the body, fuse, detonator wire, and batteries.
   (2) Utmost precaution is to be taken when assembling various parts of the mine. No part should be forced.
   (3) Once the safety features of the mine have been removed the movements in the area should be restricted and made with caution.
   (4) The utilization of the directional fragmentation mines creates a flashback or danger zone to the rear, for a distance of 30 to 100 meters at an angle of 90°, depending upon the size of the explosive content of the mine.

4. Deficiencies in the functioning, employment, and characteristics of mines:

A. The mines will fail to detonate if the blasting cap is loose from the detonator well. This is usually caused by faulty
emplacement of the cap into the detonator well or as a result of careless taping or tying of the firing wire to the mine body.

b. Enemy units are instructed never to place two directional mines close together on line. If so emplaced, the first will detonate, thus detonating or cutting the wire connected to the second mine by pressure of detonation.

g. Enemy units are instructed not to fire all of the directional mines close together on line. If so emplaced, the first will detonate, thus detonating or cutting the wire connected to the second mine by pressure of detonation.

(h) Antipersonnel Role. The directional fragmentation mine is essentially an antipersonnel weapon; it is used to destroy enemy infantry troops in open areas. It is also used in certain terrain to channel personnel into a restricted area. The directional fragmentation mines have been utilized increasingly by the enemy against allied sweep operations. These mines have been employed with devastating effects when suspended from a tree limb or other elevated object. When employed in trees, they have been primarily directed against troops riding atop tanks and APCs. In those more populated areas personnel congregated at bus stops and markets have been a major source of attack. Figure A-1 shows personnel mines in protection of defensive positions.

(c) Anti-heliborne Role. Figure A-2 illustrates a scheme of defense against helicopters utilizing directional fragmentation mines.

(d) Antivehicular Role. Directional fragmentation mines have often been directed against lightly armored vehicles such as APCs. In those instances the distance from the mine location to the target has been approximately 50 meters or less to effect penetration.

(e) Anti-watercraft Role. The enemy has used directional mines increasingly along the banks of narrow rivers and canals against boats and waterborne troop operations. Directional mines have been used often in this capacity since they are easier to prepare and camouflage than other antipersonnel weapons. A narrow part of a canal or river, a curve, boat landing, or any other location where watercraft are, for any reason, forced to slow down is the typical place for this mine to be employed. Another favorite location is the junction of two canals. Coupled with these characteristics, an area which has a preponderance of thick overhanging foliage is most desired. This has enabled the firer to remain unobserved yet provided him with a good field of vision as the target approaches the mine's effective radius.

(f) Anti-obstacle Role. Directional fragmentation mines have also been employed by the enemy to clear obstacles which would hinder their

1. Reference 6 and 7.
Figure A-1 Use of Directional Mines in Defense

Perimeter of Defense

- Blasting Machine
- DH Mines
- 40-50cm
- 100m
- DH Mine
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taping or tying of the firing wire to the mine body.

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