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THE BORDER CONTROL PROBLEM IN SOUTH VIETNAM

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ADVANCED RESEARCH PROJECTS AGENCY

The RAND Corporation
SANTA MONICA • CALIFORNIA

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PREFACE

This Memorandum primarily reports research done by the author in the field in 1962 while assigned to the Combat Development Test Center. Some later data were included during subsequent short tours in South Vietnam. The results therefore apply to the border control situation in the early spring of 1963, and many of the observations are couched in a 1962 context. Their applicability depends strongly upon the materialization of events hoped-for at that time. Of prime importance in this regard is the successful implementation of the Strategic Hamlet Program, which has been a far-reaching assumption in South Vietnam.

The main products of this study have been the guidance and suggestions provided by the author in field reports and personal discussions while he was working in South Vietnam. The present Memorandum attempts only to document those results, and is not addressed to the related history, background, or general problem of border control.

These results and observations are published at this time only to make available to a wider audience material that might be of use in subsequent considerations of border control problems. They are not intended as an up-to-date review of the general border control situation or research on that subject.
SUMMARY AND CONCLUSIONS

The major conclusion of this study is that conventional means for effectively "sealing" its entire border to Viet Cong infiltration cannot be implemented by South Vietnam within the next few years, even with substantial outside help, for lack of manpower and other resources.

It is very difficult to describe in detail the overland infiltration, because the Viet Cong routes and techniques are such as to deny surveillance by South Vietnamese forces. There is no evidence of infiltration by air, nor of appreciable infiltration by sea. In general, the data available suggest the overland infiltration is well-diffused over time and geography, amounts to less than 10,000 persons annually, does not include large amounts of logistics material, and originates almost entirely in North Vietnam, although most trails traverse Laos and part of Cambodia.

This diffusion requires that essentially the entire border be controlled. Attention to a few strategic points, e.g., passes or roads, is not adequate, because the absence of a large "logistics tail" permits the Viet Cong to adjust accordingly and infiltrate elsewhere. Two basic types of border control are possible: barrier and sieve. In the former, the border is actually sealed off physically and guarded continuously. In the sieve concept, small units would patrol randomly near the border in an attempt to deny the use of way stations to infiltrators and to detect, ambush, and destroy small groups of infiltrators (larger groups of violators would require reinforcement).

Either technique is costly in dollars and manpower. For example, an overland physical barrier of only nominal construction might have an initial cost of about $25 million, and might require 15 to 38 divisions for adequate manning. Although this construction cost would not be prohibitive, such manpower requirements would be. The costs for the sieve system would be lower in both respects, and would depend on the degree of implementation.

The government of South Vietnam is committed to the Strategic Hamlet Program (SHP) for achieving area security. This program
is directed toward the achievement of area security for all of South Vietnam through a combined civic and military action program to attain a more prosperous, socially and politically conscious populace that will actively support the government in its counterinsurgency efforts. This in turn would release conventional military units from many of their current defensive missions and permit them to undertake truly aggressive offensive action against the Viet Cong.

The implementation of the Strategic Hamlet Program requires the use of strong South Vietnamese military forces throughout the contested areas, thereby precluding their simultaneous use in border policing activities. In view of the manpower shortage in South Vietnam, the overlapping objectives of border and area security measures, and the commitment to the SHP, it is believed that the manpower required should continue to be dedicated to the SHP, eventually achieving both area and border security. That is, the border control problem must be considered in its proper perspective, as only one of many components related to the more basic goal of achieving area security for South Vietnam.

However, since the Strategic Hamlet Program will not achieve effective control over an appreciable portion of the land border areas until at least the end of 1964, the training and equipping of the Montagnard "Commando" forces along the I and II Corps border areas should be continued and extended south to Binh Long Province. In addition, Combat Hamlets should be established in the Delta border areas.

Because these measures will make land border crossings less attractive, and presumably will increase the ocean border traffic, some minor augmentation of the ocean control effort may become desirable. Should this occur, it is suggested that this effort consist of a "partial blockade" (a land-sea-air combination) off Ben Hai in the north and off Ha Tien and Phu Quoc Island in the south, with a few coast watchers and patrols in between. The latter two elements also could assist in the interdiction of the seaborne coastal movement of Viet Cong supplies within South Vietnam--felt to be at least as important a problem as the seaborne infiltration.
One often inadequately considered key to border control, in fact to counterinsurgency, is adequate intelligence. This can be had only when the populace actively supports the government in all or most of its actions. In South Vietnam, this degree of popular support is likely to come about only through better protection of the populace, improved public administration, and better opportunities for social and economic progress.

Finally, regardless of the program adopted, it is suggested that command responsibility be vested in one man for each major border area, and further, that each man with such responsibility be supplied with the requisite resources.
ACKNOWLEDGMENTS

It would be virtually impossible to list all of the persons who assisted in gathering material for this Memorandum. The Military Assistance Command, Vietnam, the Military Assistance Advisory Group, the U.S. Committee for Province Rehabilitation, Sector Advisers among U.S. elements, and members of the Combat Development and Testing Center, Vietnam, the Inter-ministerial Committee for Strategic Hamlets, the Army, and various province chiefs among the South Vietnamese elements form only a partial listing.

However, for assistance in preparing the Memorandum, the author is indebted to J. M. Carrier, R. G. Lockhart, and G. C. Reinhardt of The RAND Corporation staff, and J. J. Zasloff, Consultant.
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<tr>
<td>ARPA</td>
<td>Advanced Research Projects Agency</td>
</tr>
<tr>
<td>ARVN</td>
<td>Army, Republic of Vietnam</td>
</tr>
<tr>
<td>CDTC-V</td>
<td>Combat Development and Testing Center, Vietnam, a Joint GVN-U.S. staffed agency of which MACRD is the U.S. component</td>
</tr>
<tr>
<td>CG</td>
<td>The &quot;Bao An&quot; or Civil Guard, normally under control of the Province Chief</td>
</tr>
<tr>
<td>DMZ</td>
<td>Demilitarized Zone (along the border separating the DRV and SVN)</td>
</tr>
<tr>
<td>DRV</td>
<td>Democratic Republic of Vietnam (i.e., North Vietnam)</td>
</tr>
<tr>
<td>GVN</td>
<td>Government of (South) Vietnam</td>
</tr>
<tr>
<td>GVNAF</td>
<td>Government of Vietnam Armed Forces</td>
</tr>
<tr>
<td>MAAG</td>
<td>Military Assistance Advisory Group</td>
</tr>
<tr>
<td>MACV</td>
<td>Military Assistance Command, Vietnam</td>
</tr>
<tr>
<td>MACRD</td>
<td>Refers to OSD/ARPA R&amp;D Field Unit (changed to MACRD in mid 1962)</td>
</tr>
<tr>
<td>OSD</td>
<td>Office, Secretary of Defense</td>
</tr>
<tr>
<td>R&amp;D FU</td>
<td>Research and Development Field Unit</td>
</tr>
<tr>
<td>SDC</td>
<td>The &quot;Dan Ve&quot; or Self Defense Corps, part time and paramilitary, normally under control of Province Chief</td>
</tr>
<tr>
<td>SVN</td>
<td>South Vietnam</td>
</tr>
<tr>
<td>USOM</td>
<td>U.S. Operations Mission</td>
</tr>
<tr>
<td>VC</td>
<td>Viet Cong</td>
</tr>
</tbody>
</table>
I. INTRODUCTION

The problem of preventing unauthorized border traffic has plagued countries since time immemorial. Examples of attempts to control such traffic include the Great Wall of China, Hadrian's Wall in Britain, and the wall between East and West Berlin.

Although South Vietnam (SVN) has since its inception been subject to Communist-directed infiltration from the Democratic Republic of Vietnam (DRV) directly and via Laos and Cambodia, only since about 1962 has the magnitude of the infiltration become important. The numbers can only be estimated of course; if one could count the infiltrators, one presumably could capture, kill, or control them. The estimated (but not confirmed) rate for the past few years, about 500 to 1000 persons per month, has concerned the Vietnamese government considerably, particularly since captured diaries and PW interrogations indicate that most of the infiltrators are well trained and highly dedicated Communist troops or political leaders.

Hence, shortly after its organization, the Combat Development and Testing Center in Vietnam (CDTC-V), a joint Vietnamese-U.S. staffed agency, established a project concerned with reducing the magnitude of this infiltration. The RAND Corporation was asked by ARPA to assist in a study of border control problems, including, but not necessarily limited to, the following aspects in Vietnam:

1. obtain an understanding of the essential features of present unauthorized border traffic
2. define typical areas of high density unauthorized traffic
3. determine the effectiveness of past and present control methods
4. undertake a pilot model border control test plan
5. suggest different allocations of resources where desirable
6. suggest new or different control means.
It has not been possible in the time spent in this particular project to provide definitive results in any of these areas. However, it was possible to provide insight and guidance on the border control problem during the actual tours of duty, in the form of field memoranda and personal discussion.

This Memorandum, developed from a field report issued in Vietnam by the OSD/ARPA R&D Field Unit (R&D FU), is an attempt to document RAND work and guidance on all but No. 4 of the aspects of the border control problem listed above. The border control test plan was deemed infeasible and never undertaken.

This is not an exhaustive report of all the operations, contingencies, or possibilities concerning border control. It is limited principally to a historical survey of what the author could accomplish during his first visit to Vietnam, updated as well as possible during later assignments. In view of this, its principal audience comprises those intimately concerned with the Vietnamese border control problem.
II. THE NATURE AND MAGNITUDE OF THE UNAUTHORIZED BORDER TRAFFIC

In all countries, all unauthorized border traffic is illegal. However, effective border control exists when the undesirable border traffic is held at an acceptable level. In Vietnam, where some of the boundary is in dispute, where much of the border is uninhabited, and where there are few border traffic control points, it is obvious that a very considerable amount of illegal traffic can exist. However, much of this traffic is innocuous, since it is the normal movement of people and their goods. The undesirable traffic of the Viet Cong and their supplies could become embedded in the innocent traffic (although currently there is no indication of this except for the infiltration of key personnel), creating a major obstacle in identifying the VC element of the unauthorized boundary crossings.

As mentioned previously, the magnitude of the VC element of unauthorized traffic can only be estimated, since at present there is virtually no visual confirmation of,* much less control over, the border traffic. In addition, "Experience shows that confirmatory evidence relating to infiltration usually reaches the Military Command, Vietnam (MACV) some five to six months after infiltration has occurred."(1) Since the VC derive most of their logistic support from within SVN, through local manufacture of arms and munitions or capture from GVN forces, and food gifts or levies from the local populace, they do not have the large "logistics-tail" of conventional armies. Although they carry their own arms plus some other supplies, they do depend on way

*Reference 1 states: "Thus far no visual confirmation, except for some low-level agent reports, of actual infiltration has been obtained. The area used by the Viet Cong for their infiltration is such that contact by Republic of Vietnam forces with an infiltration group or detection of such a group through aerial observation is extremely doubtful."
stations for the food and guides needed during the infiltration journey. Indications of the amount of logistic support from outside SVN are varied.** Most of the VC traffic into Vietnam is believed to originate in the Democratic Republic of Vietnam (North Vietnam or DRV) and to go by foot along the Laos-SVN border areas. "The use of Cambodia as a safe haven by VC in SVN border areas has been reported by prisoners, but no hard evidence of the use of Cambodia for extensive infiltration purposes has been uncovered. There has been no evidence of air infiltration."(1) Contrary to the indications of Ref. 2, there is little indication that any appreciable fraction of the infiltration is by sea.

*From Ref. 1: "Characteristics of the infiltration corridors and way stations are as follows:

a. Routes consist of any number of trails following lines of drift through southern Laos and western portion of the Republic of Vietnam.

b. Way stations are located approximately 1-day's march apart, are manned by 15 to 20 personnel, and construction of buildings is identical with other structures in the area.

c. Personnel who man the way stations serve as guides, porters, couriers, medical aid men, security guards, propagandists, and food producers.

d. Support by local populace is essential for security and logistical reasons."

**Reference 2 states "Through its clandestine channels in the South, the Viet Cong (VC) have sent not only agents...but large quantities of military equipment and other supplies." In one case "this...military hardware could supply at least 30 regular companies of infantry."

Reference 1 says: "The infiltration of Communist Bloc material has been confirmed in the form of equipment which has been captured in increasing amounts during the second half of 1962. Significant items were 135 rounds of Chicom 57-mm recoilless rifle ammunition, 5 AT mines of suspected Bloc origin, approx. 2,500 rounds of Sino-Soviet 7.62-mm type "p" ammo, 30 rounds of Czech 7.65-mm pistol ammo, three different types of incendiary grenades believed to be manufactured in the DRV, copies of Viet Cong firing tables, 16 Soviet or Chicom plastic 60-mm/82-mm mortar fuzes, four modified Chicom K-50 type SMG, 7.62-mm ammo, two Chicom 57-mm RR, seven Chicom 57-mm RR mounts, 100 Chicom stick grenades, numerous Chicom TNT blocks, 10 suspect Chicom 60-mm mortar fuzes, 6 rounds of Chicom 60-mm mortar ammo and one suspect Chicom switchboard." However, these quantities, when compared with total captures of equipment, are relatively minor.
The DRV is actively involved in the infiltration.

It is quite evident from prisoner statements that the DRV has set up a special infiltration training school at Ha Dong (southwest of Hanoi)....The establishment of the training center and the detailing of personnel to this facility on a regular basis indicate planning for continuing infiltration of units....Prisoner reports reveal that the center has a capacity for some 3,000 men who are trained in 500-man groups known as training battalions. The training cycle lasts for approximately three months. (1)

Definition of typical areas of high density unauthorized traffic is difficult because there have been only two or three confirmed incidents per month. Even pinpointing a given route that had been used by the VC has become difficult since VC security measures have been tightened. Further, the routes are not a single trail system, but involve a complexity of trails (Fig. 1). (1) Use of a particular trail is affected by climatic conditions, GVN activities, and VC logistic and operational requirements. Infiltration travel time varies and, of course, depends on the destination. The 65th Bn required 45 days to travel from Ha Dong to Quang Nam province; Group 15 needed a little over four months to arrive in Zone D (Fig. 1). (1)

Appendix A gives representative border infiltration data for June 1961 through March 1962, based on information available as of 1 April 1962. These data indicate that the "reliable" reportings of land border crossings were largely in strength (battalion or company size units).

A summary of the infiltration groups during 1962 as identified in POW reports is given on p. 7. (1) Data from the two sources, meager as they are, do not indicate any significant changes with time.
Fig. 1—VC infiltration routes and war zones\(^{(1)}\)
### Jan.-July 1962 Infiltrations

<table>
<thead>
<tr>
<th>Date Departed DRV</th>
<th>Unit or Group No.</th>
<th>Strength</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 3</td>
<td>29th Group</td>
<td>60</td>
<td>Zone D</td>
</tr>
<tr>
<td>January 15</td>
<td>100th Group</td>
<td>300</td>
<td>Do Xa</td>
</tr>
<tr>
<td>January</td>
<td></td>
<td>30</td>
<td>Military Region 6&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>February 2</td>
<td>C-7 Group</td>
<td>10</td>
<td>Kontum</td>
</tr>
<tr>
<td>February 24</td>
<td>338th Engr Group</td>
<td>65</td>
<td>Military Section, Central Office, SVN</td>
</tr>
<tr>
<td>March 23</td>
<td>65th Bn</td>
<td>100</td>
<td>Do Xa</td>
</tr>
<tr>
<td>March</td>
<td>49th Group</td>
<td>400</td>
<td>Quang Nam</td>
</tr>
<tr>
<td>April 3</td>
<td>15th Group</td>
<td>300</td>
<td>Zone D</td>
</tr>
<tr>
<td>April 16</td>
<td>C-47th Group</td>
<td>500</td>
<td>Zone D</td>
</tr>
<tr>
<td>June</td>
<td>Team 42</td>
<td>62</td>
<td>Phuoc Long</td>
</tr>
<tr>
<td>July 18</td>
<td>32d Group</td>
<td>500</td>
<td>Military Region 8&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>July</td>
<td>36th</td>
<td>400</td>
<td>Military Region 5&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>July</td>
<td>99th</td>
<td>400</td>
<td>Military Region 5&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup>VC military regions. For the five regions, VC infiltration groups are in most cases channeled into reception centers (Figs. 1 and 2) set up in all VC military regions before final assignment.

The main centers are as follows:

<table>
<thead>
<tr>
<th>Military Region</th>
<th>Center Name</th>
<th>UTM Coordinates</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Do Xa</td>
<td>AS8988</td>
</tr>
<tr>
<td>6</td>
<td>Chu Namket</td>
<td>ZV1529</td>
</tr>
<tr>
<td>7</td>
<td>Zone D</td>
<td>YT3050</td>
</tr>
<tr>
<td>8</td>
<td>Do Thu</td>
<td>XT2504</td>
</tr>
<tr>
<td>9</td>
<td>U Minh Thuong</td>
<td>WR1566</td>
</tr>
</tbody>
</table>

**N.B.** Figure 10 (p. 33) carries Universal Transverse Mercator (UTM) Coordinates.
Fig. 2 — GVN and VC military regions in SVN (January - November, 1963)

MR5 = I and II Corps areas
MR6 = 23rd Division area + Binh Tuy Province
MR7 = 5th Division area - Binh Tuy Province
MR8 = 7th Division area
MR9 = 21st Division area
III. SOME DIFFICULTIES FACING BORDER CONTROL EFFORTS

Effective border control is difficult under the best of circumstances; e.g., in the first year of the Berlin Wall 12,000 escaped into West Berlin. In pre-independent Algeria the French built a complex "barrage" or fence barrier totaling 2500-3000 km and used 80,000 men to guard it before they could effectively seal off just two sides of the country. The desert to the south and the Mediterranean called for different measures. Algerian border control conditions were considerably more favorable than those in Vietnam.

Geographical Aspects*

South Vietnam has very long borders for its roughly 66,000-sq mi area. Its land border is about 900 mi in length and the ocean border about 1200, but for control purposes the appropriate values of "effective border lengths" are approximately 800 and 1000 statute miles respectively. (For the same area and "effective control perimeter," an equivalent rectangle would have side lengths of 80.5 and 820 mi.)

Another feature is the extensive variation of terrain type. The northern two-thirds of the country, the Highland region, is dominated by a chain of mountains and rugged hills running southeast-northwest. The mountains have steep slopes, sharp crests, narrow valleys, and are covered by dense vegetation. This area is sparsely populated and has few roads or trails.

The Coastal plain varies from roughly 10 to 25 mi in width and extends from the DRV to the Delta plain in the south. Sandy beach and dunes compartmentalized by spurs of mountain chains jutting out to the sea and numerous populated areas characterize this region.

The Plateau area, gently rolling terrain, lies adjacent to Laos and Cambodia borders and in the north is covered by dense forests and jungles. In the south are open forests and trop

*Much of this material is taken from Ref. 6, and the would be aided by various kinds of maps. However, many of not currently available; a report addressed to maps of SVN is in process.
grasses. The southern plateau, more populated than the mountainous region, also has a more extensive road and trail network.

The Delta area, the southern third of the country, is a large, relatively flat plain that includes the Mekong, Saigon, and Dong Nai rivers. Cut by the tributaries of the Mekong, a network of canals, and small streams, it is largely inundated during the rainy season. Its eastern portion is heavily forested, and there are mangrove swamps along many of the rivers and in the southwest. Most of Vietnam's rice is grown in the Delta area, which is also the most densely populated area.

Inadequate road and rail systems and bridges hamper movement in northern SVN. On the other hand, the Delta has extensive navigable inland waterways. Radio communication is often handicapped by adverse climate, terrain, and vegetation cover.

Identification Aspects

Although it is believed that there is currently little sea-borne infiltration, should the land border be sealed or should the Communists attempt to step up their infiltration efforts, then infiltration by sea could become a problem. Prevention or control would be hampered by the lack of adequate surveillance means, the numerous relatively unpopulated beaching areas, the extensive ocean border length, and the numerous (tens of thousands) junks and sampans engaged in fishing and the coastal movement of supplies. Whether the SVN junk force fleet being developed by the Government of (South) Vietnam, or GVN, can attain the degree of control envisioned for it is not known.

Identification of unauthorized land border traffic is severely hampered by the virtually complete lack of means for border surveillance, particularly along the Laos border where most of the VC traffic crosses. North of about 12°30' (Fig. 6, p. 18) the lack of roads is a primary deficiency. Even if considerable resources were committed, the effectiveness of surveillance and control would be low. In the northern sections handicaps include rough terrain, heavy cover, poor visibility, sparseness of population, and an uncooperative attitude by certain of the Montagnard tribes. In the Delta, one major difficulty is the large number of suitable crossing points.
Political Aspects

North Vietnam is openly hostile to the GVN, Cambodia is semi-hostile, and along its Vietnamese border, is infested with bandits. Laos, although neutral, is becoming more Communist dominated day by day. Although VC infiltration originates mainly in DRV (Laos is just the transit route), all three countries serve as sanctuaries into which the VC can flee when pursued.

The Montagnard tribes, which inhabit the Highland and Plateau areas, have historically been treated as savages or, at best, as second-class citizens by the Vietnamese; despite recent efforts by the GVN and the U.S. Army Special Forces teams to improve relationships, many tribes are still hostile to the GVN. The Vietnamese tribes are racially related to the Meos in Laos who occupy a similar position there and have equally little contact with the lowland peasants.

Considering the fact that there were two attempted military coups in the three years before the successful ones of November 1963 and January 1964, it appears that political instability played a substantial role in the internal difficulties of the South Vietnamese government. It is, of course, too early to tell to what degree the current regime will have the loyalty of the populace in its counterinsurgency efforts.

The Vietnamese peasant's primary contact with his government has been at village level and there principally through taxation or military draft. Until recent action by the United States Operations Mission (USOM), most villages did not have a radio set and did not receive any newspaper. Many Vietnamese peasants, as might well be expected, are apathetic toward the counterinsurgency efforts of their government, particularly when, as has been demonstrated to many of them, the government cannot protect them from the threats or levies of the VC.

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* Figure 3 shows the tribal regions. Population figures for major tribes are: the Jarai (150,000), Hrey (120,000), Koho and Rhade (100,000 each), Bahnar (75,000), and Cham (~40,000).(9)

** E.g., the Katu tribes in Quang Nam and Thua Thien.
Fig. 3—Location of Montagnard Tribes
Resource Aspects

In underdeveloped countries such as Vietnam, where many of the people live on a hand-to-mouth basis, few resources are adequate and often none is surplus. Even manpower, characteristically a surplus commodity in underdeveloped countries, is in short supply in Vietnam because of World War II, the battles with the French, and the manning requirements of the armed forces in the current counterinsurgency effort.

The United States is spending more than $1 million per day in Vietnam, much of it in the form of economic aid (food, wells, schools, bridges, village radios, roads, teachers' salaries, etc.). The U.S. military aid consists of arms, ammunition, jeeps, trucks, military communication equipment, strategic hamlet kits, * aircraft, and support in the form of U.S. advisers.

However, until such time as the U.S. or other friendly governments decide to commit large numbers of troops to assist in the defense of SVN (or until the Vietnamese government can win the active support of a larger fraction of the populace), manpower will continue to be a crucially deficient resource item.

*Consisting of fencing materials, guns, etc.
IV. CONTROL TECHNIQUES

Many types and degrees of border control could be considered for application in Vietnam; they would vary in cost, effectiveness, and calendar time to implement. One useful comparison would be that of the cost-effectiveness ratios, i.e., effectiveness attained for unit of cost.

In regard to most industrial processes, say the refining of a chemical substance or the production of a piece of equipment, the following generalized relationship holds (Fig. 4). The purer the degree of refinement of the chemical, the greater the cost; the more accurate or versatile the machine, the greater its cost. Beyond some point of very high performance, the costs tend to increase at a much higher (disproportionate) rate.

For the cost-effectiveness discussions in this section, the cost term is meant to include all expenditures of every sort: manpower, money, and materiel. The return for the low cost expenditures is small. In fact there is almost always a "mobilization charge" in tools, men, and equipment that, until the end item is procured, produces no measurable return. The dollars spent in the mid-cost range

![Fig. 4—Generalized cost-effectiveness chart](image-url)
will, in general, have a relatively high per unit return in effectiveness. At the high end of the cost scale, the return per additional dollar spent will be smaller. Point A, at which a line from the origin is tangent to the cost-effectiveness curve, is a so-called "optimum" point; it achieves the greatest effectiveness per unit cost.

In general, one should design his tactics and purchase his men and equipment with the aim of achieving this "best" cost-effectiveness ratio, provided the corresponding level of effectiveness is adequate. In Vietnam, the total resources that can or are likely to be supplied to the border control problem are so limited as to make cost-effectiveness considerations of paramount importance.

LAND BORDER CONTROL

Two basically different concepts of border control, the "barrier" and the "sieve," will be discussed next.

Barrier

This concept involves fences, walls, mines, moats, closely spaced patrols, and other types of physical, biological, or chemical barriers. Such an attempt to effectively "seal" the border against all would-be violators is the traditional approach to the border control problem and could be started immediately. (10) It is also the most effective form of control if there are no holes in the barrier and if the barrier is covered by fire. There is a military adage: "an obstacle not covered by fire is usually only a nuisance."

However, implementing such a barrier for Vietnam would be very costly. For 900 miles of land boundary in Vietnam, the installation cost, at $5 per running foot, would approach $25 million. However, even without the cost of clearing (and maintaining the clearance) extensive mountainous and jungle areas to provide visibility and fields of fire, fencing or mines could well exceed the $5 per foot value.*

*Appendix B includes installation cost estimates for Vietnam.
The Military Assistance Advisory Group (MAAG) estimated that ensuring the integrity of the barrier for Vietnam would require between 25 and 38 divisions, depending on the degree of "seal." Such a manning requirement is well beyond the Government of Vietnam Armed Forces (GVNAF) capability, since its regular army consists of only nine divisions. Hence the "costs" of the barrier concept are so high as to exclude its full implementation unless very large augmentations of both materiel and manpower are supplied by the United States or other outside sources.

Although the "mobilization charge" for a barrier control is low, one would need a large fraction of the entire installation before obtaining an appreciable degree of effectiveness. Figure 5 indicates roughly a cost-effectiveness curve for the barrier method.

![Cost-effectiveness chart for barrier method](image)

**Fig. 5**—Cost-effectiveness chart for barrier method

Point A, the best cost-effectiveness ratio, is obtained when the installation is very nearly complete. This is because border violators will bypass the barrier as long as holes exist, although new entry routes may have to be established. While violators may be inconvenienced, crossings may consume more time, and the trip may be more

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*Some manning data for "barriers" in Algeria and Eastern Europe are given in Appendix C.*
difficult, the number of violators will not be reduced appreciably as long as holes exist. On the other hand, partial installation of a barrier will increase the density of violators passing through the holes, making detection, tracking, and elimination in these areas easier.

Three additional points with regard to barrier application in Vietnam should be mentioned here. The first is that while night lighting of the barrier installation is highly desirable, if not essential, Vietnam does not have the requisite power generation equipment to accomplish this in an economical manner. The second point is that much of the area on the SVN side of the boundary is currently not under GVN control and hence the barrier would either have to be defended against attacks from both sides, or installation would have to be delayed until the border area inside SVN is secure.

The third point is that an appreciable fraction of the boundary lacks an adequate road network for reinforcement (Fig. 6).

Sieve

The sieve concept uses existing outposts plus some new ones, on both the land and sea borders of SVN. The sieve concept emphasizes small unit patrolling of randomly assigned areas near the boundary but away from fixed outposts, strong points, or patrol bases. The prime missions of the sieve are the denial of the logistic support of way stations and the detection, ambush, and destruction of small groups of infiltrators. Engagement of larger groups of violators would require prompt assistance from reserve units.

The sieve concept is an especially attractive one for application around the Route 9 entry into SVN (Fig. 6) and south as far as Pleiku

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* In Algeria, ground-based, personnel-detection radar was used with "on-call" aircraft for flare support. However, this is also expensive.

** Construction of one-side secure areas distant from the border would entail additional costs, since the barrier would eventually have to be moved outward to the border. Further, this alternative probably would be politically unacceptable to the GVN.

*** Such as the proposed Cambodian border zone Combat Hamlets that are planned as Civil Guard (CG) or Self Defense Corps (SDC) outposts for patrolling action.
Fig. 6—General map of South Vietnam highways
and perhaps even Darlac Province. This border region is a major transit area for VC from the DRV. For the area around Route 9, if communications and speed of reinforcement could be improved, e.g., by a road linking Huong Hoa on the western portion of Route 9 and Ashau, at the terminal of the road now being driven west from Hue, then the present border posts in this area appear to be adequate for basing the forces required for an effective "sieve." However, these posts must be used as patrolling bases rather than as border posts, and the troops for this patrolling-ambush operation must be of the highest caliber, like the Ranger forces.

To capitalize on the mobility feature of the sieve concept, it may be desirable to clear an essentially continuous strip along or close to the land boundary. Some additional clearing along existing roads (or canals) close to the boundary would, in many instances, provide the desired capability. In other areas, including the seacoast, additional roads or canals may be needed. The width of the cleared areas (or roads) can vary, depending on terrain, ease of access, etc., but helicopter troop movement would call for, say, 50 by 50 meters cleared along the boundary every few miles, plus additional areas behind the border for the ensured safe delivery of reinforcements.

The current efforts of the U.S. Army Special Forces training teams, in the organizing, training, and equipping of Montagnards to serve as Trail Watchers, Strike Forces, or Commandos is one application of the sieve concept. The strong points or patrol bases in this application are the Strategic or Combat Hamlets in which the Montagnards

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*See Fig. 11, p. 35 for SDC post locations only. There are also some CG border posts.

**The extent of road (or canal) construction required obviously will be a function of reinforcement capabilities for both the barrier and sieve concepts. Both concepts require rapid reinforcements to counter large-scale penetrations. Reinforcement by surface transport would require far more extensive road (or canal) networks than would reinforcement by helicopter.
and their families have been relocated.* Application of the sieve concept appears attractive for the Cambodian border area from Pleiku province to northern Binh Long province ** (although it is currently being implemented in general farther north). This border area, largely savannah, is essentially unpopulated except along the Ea Krong River flowing from Darlac to Cambodia. Hence, since the terrain is easily traversed by foot, the interdiction of VC traffic should seemingly be directed toward the few footpaths, animal trails, water holes, and way stations. However, the feasibility of relocating tribes (such as the Budip, Steing, Muong, and Mnong) into this border area for use in the sieve operation will require investigation.

The GVN-proposed Combat Hamlets along the Cambodian border, out of which CG and SDC forces are to patrol, is another application of this concept. However, unless the hamlets are in relatively secure areas, they are, in a very real sense, outposts subject to being overrun rather quickly at times of VC choice. Because of this they may not be used as planned—as bases for aggressive patrolling.

Let us now turn to the likely nature of the cost-effectiveness curve for this sieve concept of border control. Plausibly, Fig. 7 is
representative and the effectiveness, in terms of potential violators eliminated, appears to be a valid criterion. The dashed portion of this figure corresponds to the expected reduction of infiltration caused by the high effectiveness of sieve.

Although the numerical aspects of the preceding cost-effectiveness relationships cannot be specified, one can make a limited conclusion relative to barrier and sieve control methods:

a. When limited manpower and resources preclude implementation of the barrier concept over a large fraction of the border, then the sieve method is preferable; in addition, a dead violator is a permanently deterred violator.

b. When manpower and resources are permanently available for full implementation of the barrier concept, the latter is preferable to the sieve concept.

OCEAN BORDER CONTROL

Lack of information about unauthorized movement across the ocean boundary precludes an accurate estimate of its magnitude. Although at present the importance is believed to be minimal, were the land border to be effectively sealed, or the scale of the Communist-directed activity increased, this type of infiltration of people and supplies could become a serious threat. Hence for planning purposes there should be, at least, some consideration of the best manner of achieving control over this traffic so that it can be implemented expeditiously if necessary.

Control would be complicated by the vast amount of normal, innocent traffic (fishermen's sampans and junks number in the tens of thousands) within a few miles of the shore and by the extensive offshore island complexes.

South Vietnam's junk force fleet of some 650 vessels made up of divisions that each contain 3 command junks and 20 smaller junks is the major GVN effort at attempting to interdict the VC intercoastal and river waterborne traffic of men, food, and supplies. * It might

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*The utility of this large and readily identifiable force has not been proved. Command and control problems are also a matter for concern.
also be of assistance to conventional naval forces in controlling sea-
border infiltration.

Any effective control over the ocean traffic off Vietnam will
necessarily involve inconvenience as well as some economic hardship
to the legitimate traffic. Ascertaining the politically and economi-
cally acceptable level of such control would require detailed study.

Control of the ocean traffic off Vietnam is a problem quite
similar in many respects to the air defense problem of the United
States; hence, we will seek an analogous solution. In both cases a
major problem is that of reducing to an acceptable level the number
of unauthorized or unfriendly units that enter or leave the perimeter
area. In both cases there may be as many as 10,000 units, far too
many to track on a continuous basis. Further, both are also hampered
by territorial limits, beyond which vehicles cannot be legally stopped,
searched, seized, or destroyed except under extraordinary circumstances,
such as during a declared state of siege, etc.

The two problem areas differ, however, in that most U.S. air traf-
fic originates and terminates well inside the country while most of the
SVN vessels traverse the territorial waters (the perimeter) regularly.
A large proportion of this traffic is made up of fishing vessels that
cross the territorial waters daily or two or three times a week. Thus
the number of units that the U.S. air defense need be concerned with
is substantially smaller.

A major factor that facilitates air defense control is a separa-
tion of the traffic objects into a large group that can be ignored
and a relatively small group in the border area that is tracked con-
tinuously and rigidly controlled. Thus, use of an effective peripheral
identification and control mechanism permits the air defense system
to ignore the very large mass of internal traffic that moves through-
out most of the interior without challenge. A similar sort of traffic
division appears to be required if SVN is to effect an economically
feasible solution to the ocean control problem.

A major aspect of border control is identification. For air defense,
a satisfactory solution has been the establishment of identification
zones, the advance filing of flight plans, and the use of radio coded
identity information, programmed maneuvers, etc., for increasing the likelihood of proper identification. For aircraft coming into the United States, the identification generally takes place well outside the U.S. borders. Further, to protect certain valuable targets, certain areas have been established as prohibited areas. It seems reasonable to suppose that both prohibited areas and relatively small identification zones would be required for an economically feasible solution to the SVN border control problem.

A solution directly analogous to the air defense solution is shown in Fig. 8. This concept will be referred to as "blockade." The extent of the offshore no-control area is such that only a small portion of the total sea traffic will leave or enter the area. Major difficulties with this solution are:

1. Despite the reduced traffic, surveillance, tracking, identification, and interdiction of any vessels that attempt to pass through the prohibited areas would still be needed. This would call for many high-speed boats and/or aircraft, probably with radar for night operation. The blockade would be quite expensive. Further, the economically attractive methods for enforcement (shelling, bombing, or strafing the violators) are unacceptable to the CWN.

2. Because most of the vessels do not have navigation equipment, relatively small identification zones, mostly well offshore, may not be practicable.* While the inspection and control zones could be wide, this would require more enforcement vehicles.

3. Obtaining international agreement for stopping and searching shipping outside of SVN territorial waters appears highly unlikely. Hence implementation of this concept might require a deliberate perturbation of international law or the declaration of a state of belligerency, under which search for contraband can be made on the high seas.

If the surveillance (prohibited) area were pulled in toward shore, the already high costs would increase because of the need for more identification and control vehicles. The cost reduction from shortening the perimeter of the surveillance zone would be trivial in comparison.

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* The utility of light beacons at the off-shore entry points deserves study.
Permissible entry or exit route for identification and control. Surface ships located here to perform the identification and inspection function.

Surveillance and tracking areas, these are also "prohibited areas."

Surveillance ships (or aircraft)

High-speed back-up or "enforcer" ships (or on-call aircraft for enforcement)

Fig. 8—"Blockade" control concept
Inspection and control only within territorial waters, corresponding to essentially a zero-width no-control area, would be prohibitively costly.* On the other hand, it could be conducted without legal complications.

Another possibility for control, the "partial-blockade" is shown in Fig. 9. In this concept the width of the no-control area would be essentially infinite. Separate surveillance (prohibited) zones would be established in the north and the south. The northern zone would start at Ben Hai and go roughly east for about 120 miles and then east-southeast for an additional 80 miles. In addition, the Paracel Islands would come under surveillance. The southern zone would start at Ha Tien, go to Phu Quoc, and then seaward for a total distance of about 150 miles. As in blockade, ships and aircraft would be used for inspection, identification, and enforcement.

Since the total length of the control zones for partial-blockade would be roughly one-third that of blockade, its cost should be much lower.

The effectiveness of partial-blockade should approach that of blockade, since boats would be forced to go far out to sea to avoid the control zones, a costly and, for small boats, dangerous course.

Some tentative conclusions may be stated here:

1. To be economically feasible, effective control of the ocean traffic off South Vietnam appears to require the establishment of an extensive no-control area, prohibited areas, and inspection and control vehicles.

2. The size and shape of the no-control area must be such that only a minor portion of the total sea traffic will enter or leave this area, but that part must have rigorous identification, inspection, and control.

* Appendix D relates the required spacing and speed characteristics of the patrol vessels to the speed of the target vessel (for this territorial waters case). Obviously the fewer the patrol vessels, the greater their maximum speed must be. The half-dozen 17-km motor gunboats currently being transferred to the Vietnamese Navy by the United States have roughly the indicated speed requirement. While these 101-ft long, twin 950-hp diesel-powered craft will increase markedly the SVN capability, many more would be required to implement the territorial waters concept.
Fig. 9—"Partial-blockade" concept
3. A suitable no-control area requires prohibited areas and inspection and control vehicles outside territorial waters, together with a deliberate perturbation of international law regarding freedom of the high seas. However, ample precedent exists for the latter action, e.g., the U.S. Civil War.

4. The partial-blockade concept appears to be better than blockade from a cost-effectiveness standpoint. However, neither concept in any way helps in control of coastal waterborne movement of VC supplies, believed to be as detrimental to the SVN cause.

5. The large demands on the resources of SVN or an ally and the failure of the discussed sea-control methods to contribute to the equally serious coastal movement problem point to a need for alternative approaches.

To inhibit infiltration by sea, a modified implementation of the partial-blockade concept is suggested. However, to reduce costs the surveillance areas probably should be reduced and changed periodically on a random basis. It is felt that aerial surveillance, closely integrated (unity of command and operational control) with a relatively small number of high-speed naval surface patrol vessels and shore-based radars, might be sufficient to control the infiltration traffic to an acceptable level for reasonable costs. There should then be shore-based MTI radars at Ben Hai, the Paracels, Ha Tien, and Phu Quoc Island.

As a backup for the partial-blockade, but more importantly to interdict the waterborne coastal movement of VC supplies, a combination of measures is needed, such as shore or floating inspection stations,

*For night or other poor visibility situations, the aircraft should have moving target indicator (MTI) radar, a high intensity lighting system, scotoscope, or other devices. The development of a high intensity floodlight system for C-130 or C-123 aircraft has already been suggested, and an airborne dye dispenser to "mark" suspect shipping, in lieu of attacking it immediately, should be considered.

**For daytime use in the close-to-shore areas, the Dong-Nai boats now in the GVNAF inventory might be quite useful.
coast watchers along uninhabited stretches of the coast, licensing of vessels and crew identity cards (already in effect), and intermittent random inspection by surface vessels. However, the most important ingredient for effective control at reasonable cost in men, materiel, and money is a functioning intelligence system into which the bulk of the intelligence flows freely and spontaneously.

An intelligence system within the seagoing fishermen’s communities should be started as soon as possible in conjunction with the local police system activities (initially, if necessary, by purchasing information). However, a truly effective intelligence system must await the development of both a self- or government-protected populace and a government-supporting populace.

COMMAND RESPONSIBILITY AND INTELLIGENCE

It should be obvious that, for any effective border control, a command responsibility is required. This has not been the situation, however, as Ref. 13 (October 1962) states:

At present, no one is responsible for the border. It is included as part of each corps responsibility, broken down through the echelons to division and regiments. The relative responsibilities of the ARVN (Vietnamese Army) commanders and the province chiefs concerned are vague and various. And the upshot is that there is no border defense policy--a situation of which the VC make hay....Once it is decided to close a major section of the border the task must be made one man’s primary responsibility--from which he may not be distracted.

Along with this responsibility must go the required resources for accomplishment of the job.

*The January 1963 reorganization of the Vietnamese Army from 3 to 4 corps to a minor extent alleviated this problem. Whereas previously all division borders ran roughly east-west, after the reorganization in II Corps (but for this Corps only) the 22nd Division was given responsibility for the western provinces (Kontum and Pleiku), while the 25th and 9th Divisions were given responsibility for the eastern provinces (Quang Ngai, Binh Dinh, and Phu Yen) plus Phu Bon.
One of the often inadequately considered or overlooked "keys" to the border control problem—in fact to the entire counterinsurgency effort of the GVN—is attainment of good intelligence information. This can be supplied only by a populace that actively supports the government in all or most of its actions. In Vietnam, this degree of popular support is likely to come only through (1) protection of the populace, (2) a just administration, (3) an improved social structure, and (4) a general rise in living standards. However, each of these is a stated or implied goal of the Strategic Hamlet Program, which can be equated to a "key" to border control as well as to the entire counterinsurgency effort.
V. THE BASIC PROBLEM, ACHIEVEMENT OF AREA SECURITY,
AND THE "INSIDE OUT" CONCEPT OF CONTROL

The overall goal of the counterinsurgency effort in Vietnam is to make the nation a secure area. Thus border control is not a discrete and isolated subject but only one component of the general problem of achieving (national) area security in the most expeditious and economical manner.

Although the concept discussed in this section is not usually thought of as a form of border control, it is in fact a control method. Instead of starting at the outside, i.e., the border, the control starts inside the country at city, village, and hamlet level (by making small units of the population secure) and progresses outward; hence the name "inside-out."

*These protected units should not be confused with forts. It is the stated SVN policy that individual villages and hamlets should have only the defense capability to hold off an attack until reinforcements arrive from elsewhere.

As reported by the CDTC-V in May 1962, the initial efforts concerned a surveillance system for local security of fixed installations and expanded to include a border surveillance system in October 1961. It was further expanded to the development of area security concepts (Strategic Hamlets) in May 1962. "Area security" envisions the overall protection of each province through a combined civic-military action program. This program is to provide a defense of the people, by the people, and for the people, through a collective effort directed to:

a. The establishment of secure, self-protected cities, villages, and hamlets.

b. The separation of the people from the Viet Cong and subsequent denial to the Viet Cong of the information, supplies, and recruits so necessary to their existence.

c. The relief of tactical military forces from static defense duties.

d. The employment of the relieved tactical military forces as saturation units to conduct hunter-killer operations throughout the countryside.

e. The eventual security of the entire province through the destruction of the enemy potential.

f. The eventual sealing of land and water borders by effective patrol action and the denial to the enemy of support from within Vietnam.
While the military must first make each area secure, as soon as feasible the security responsibility is transferred to civil hands. After each of a group of hamlets and villages has been made secure and transferred to civil hands, the military in that area begins to make the whole of the local area a secure zone for later transfer to civil responsibility. Small secure zones are eventually melded or grouped into larger ones until the whole country is secure. This is a major goal of the GVN Strategic Hamlet Program, now being implemented.

With this concept, control over the border zone becomes the final and essentially free-of-cost end product since, with the achievement of internal security, the infiltrators cannot exist inside Vietnam, unless by resorting to conventional overt operations. Hence, for an equitable comparison of the costs of the different control concepts, the costs of achieving area security must be added to the costs of the conventional types of border control.

Inclusion of the "inside-out concept" as one of the border control mechanisms makes the determination of an "optimum" border control method much more complex. However, it is felt that this additional complexity is both required and desirable, for it raises the very important question, "Under what circumstances is it desirable to try to effect conventional border control in under-developed areas which are subject to guerrilla activity?"

The overall problem is that of achieving area security. This security presumably can be effected, even in a hostile civilian environment, with sufficient military forces. However, the same security can be had with far less military force in a friendly civilian environment.

* The process of integrating border control with the overall counterinsurgency effort of the GVN should be a matter of conscious choice rather than a product of chance. It is a responsibility which goes well beyond the stated terms of reference of this study and leads into considerations of strategy and policy at the highest levels of government, including highly significant decisions concerning the allocations of scarce resources in a country at war. Nonetheless, the author has exceeded his stated terms of reference in making certain of his conclusions.
It is the belief of the author that the current combined civic-military efforts, as exemplified by the Strategic Hamlet Program (imperfect as it is), are the most practicable and expeditious means for effecting area security. Further, he believes that they are also the only practical means of attaining a high degree of border control without commitment of large numbers of troops from outside SVN.*

If the SHP progresses as planned, i.e., results in a populace that increasingly supports its government, then the Viet Cong must use increasingly greater force sizes per incident. This will require an increased infiltration rate of people and supplies, ** to the point that the infiltration can be met more effectively by large-scale GVN operations. At some point in the program, the enemy must either cease opposition to the GVN or resort to overt military action which, of course, is always one of his prerogatives. For the overt-action situation, the "border-control" problem melds with a larger problem, that of battlefield surveillance and control.

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* Reference 15 discusses another potentially useful means of border control, that of elimination of sanctuaries for the enemy.  
** However, the number of infiltrators (perhaps, but not necessarily, posing as "volunteers") could be stepped up appreciably before enemy action became overt.
Appendix A

REPORTS ON BORDER VIOLATIONS AND INFILTRATIONS

The following reports are reproduced here essentially unchanged to retain the realistic flavor and to indicate the limitations that are imposed on those persons working with this type of material in South Vietnam. Note that the first and the fourth are Corps level reports, the second and third, Division level reports, and the final one is made up of excerpts from a MACV J2-J3 summary.

Figure 10 carries UTM Coordinates for assistance in location of points mentioned in this Appendix.
DISPOSITION FORM

File: MAGTN-IC  SUBJ: SUMMARY OF VIET CONG BORDER INFILTRATION (U)

To: COMUSMACV  From: Senior Advisor
I Corps/Tac Zone I  Date: 7 April 1962
Attn: J2  Danang, Vietnam


2. (C) The following reports of border infiltration during the period June 1961-March 1962 have been received by Headquarters I Corps/Tactical Zone I.

   a. During May 1961 elements of 108th VC Regt (strength and equipment unknown) escorted General Nguyen Don to 5th Joint Region. 5th Joint Region Headquarters is accepted to be in the general area of the junction of the Quang Nam, Quang Ngai and Kontum Provinces.

   b. In June 1961 a Viet Cong Regiment moved south from Tchepone enroute to SVN.

   c. The 313th Group (also identified as Special Mission Battalion), departed Nghe An (North VN) on 3 June 1961 and arrived at the 5th Joint Region Liaison Station (YC 495520) on the Quang Nam-Laotian Border on 8 July 1961. This battalion has a strength of 400-500 men and is divided into 5 companies. Each man is reportedly armed with 18 kilos of explosives in addition to his individual weapons.

   d. On 8 July 1961, a VC unit enroute to SVN stopped to rest at Station Nr 3 in Laotian territory. Station Nr 3 is reported to be 3 days march from 5th Joint Region Liaison Station (YC 495520). Strength, equipment, and identity of VC unit not reported.

   e. On 14 July 61 a group of 700 highlanders from the Western Plateau (Kontum, Pleiku and Darlac) rested at Station Nr. 3.

   f. On 23 July 1961, a group of civilian cadre (89 men and 3 women) rested at 5th Joint Region Liaison Station (YC 495520).

   g. In August 1961, a Viet Cong Special Mission Battalion moved through eastern lower Laos reportedly enroute to southern SVN. By the end of August 1961 the unit had arrived at the 5th Joint Region Liaison Station on the Laotian-Quang Nam Border (via YC 495520). Further information on strength, equipment, or movement of this unit is
not available, but it is assumed the battalion entered SVN and is operating in I Corps Area. Two similar Special Mission Battalions are in training at Vinh (WF 7065).

h. During September 1961, a very large Viet Cong force (strength and equipment not reported) /sic/ infiltrated into SVN via XC 6852, XC 8668, XC 9368, XC 9966, YC 0961, YC 1356, YC 2043, YC 3726, YC 3823, and YC 4317, thence into Quang Nam Province.

i. In September 1961, Recon Team from 2nd Division observed sign in vicinity of YB 94965 indicating movement of a battalion size unit. Area is south of DAKFRAU.

j. In October 1961, Recon Team from 2nd Division observed trail crossing National Highway 14 and evidence of passage of a large group of people.

k. In October 1961, two teams of cadre crossed Ben-Hai River into SVN. One team of 40 highlanders passed through Ban-A-Choc (XD 680670) into Quang Tri Province; second team of 20 military passed through Bo-Ho-Su (XD 900680) into Quang Tri and Thua Thien Provinces.

l. On 24 February 1962, 5000 VC armed with modern equipment moved from North Vietnam into Laos through Ban Pore to YC 1600 on way to SVN. No further information on this force available. Estimate of strength of this force is considered excessive.

3. (c) An estimate by month from June 1961 to present of total VC infiltration cannot be made on the basis of information currently available. However, a document captured at Co Lu in Quang Tri Province reported that between October 1960 and March 1961 the following men and equipment were infiltrated into SVN: (a) 2000 cadre, (b) 190 AR's, (c) 401 SMG's, (d) 3354 rifles, and (3) large quantities of ammo and mines. Using this as a base, it can be assumed that the VC infiltration rate during that period was approximately 335 cadre per month. Inasmuch as the SVN control of the Laotian border has not improved a great deal since March 1961, it can be assumed that the VC infiltration rate is approximately the same per month for the period June 1961 to present.

FOR THE SENIOR ADVISOR:

FORREST L. FOWLER
Captain, Artillery
Administrative Officer
Subject: Border Infiltration

To: Senior Advisor
    II Corps
    Pleiku, VN

In compliance with your letter, subject: same as above, dated 1 April 1962, the following report is submitted on current border infiltration in the 22nd Tactical Zone:

1. Annex A describes in narrative form six documented instances of infiltration by VC officers and soldiers, citing the dates, strengths of units where known, and equipment and supplies carried where known. Also indicated on the enclosed overlay are the routes followed by each individual.

2. With respect to an estimate of total VC infiltration by month from June 61 to the present date, a reasonably accurate estimate by month is not considered possible. Likewise, sufficient information upon which to base a reasonable estimate of the current infiltration rate is not available. It is believed, however, that the heaviest infiltration occurred during August, September, and October 1961, when elements of at least four (4) battalions entered the 22nd Tactical Zone. Further, it is estimated that there are approximately 2000 VC in this zone at the present time who have infiltrated across the border, with a large majority entering subsequent to June 1961.

FOR THE SENIOR ADVISOR:

GEORGE L. WITHEY Jr.
Major, Infantry
Staff Advisor
Annex A

Seven Instances of Infiltration

Description

1. Corporal Le Hoa was captured in Binh Dinh Province on 12 October 61 at BR 850533 near Cat Hiep village by the SDC. Subsequent interrogation revealed that on 21 July 1961 he crossed the 17th parallel into South Vietnam with 9 other VC cadremen by swimming the Ben Hai River. His group reached Quang Nam Province on 2 August 61 and on 23 August 61, they entered Quang Nam Province. Prior to his capture, Le Hoa was located near An Khe, Binh Dinh Province, assigned to a regional company.

2. Pvt Luc was killed by 22nd Division troops at Daktrum (ZB 140360) on 3 Sept 61 in Kontum Province. His diary disclosed that on 6 May 61 he reached the Laos-Vietnam border, but it is not known whether he was a member of a large unit or came across with just a few men. Indications are that he was a member of the VC 803rd Regiment, elements of which infiltrated across the border at different times in several locations. On 16 July, Luc reached Do Ia, the VC communications center in Quang Nam Province and moved later down into Kontum Province, where he was killed.

3. Lt Hoang was captured in Quang Ngai Province on 29 Oct 61. He entered S. Vietnam from Laos on 20 June 61, moving through Quang Nam Province and then into Do Xa on 19 August. There were 61 VC in this group, and these men eventually formed the nucleus of a VC company in Quang Ngai Province. This company was equipped with one AR, SMG's, and rifles. While there is no indication that Lt Hoang ever entered the 22nd Tactical Zone, it has been determined that elements of a larger parent unit which crossed the border at the same time did enter the 22nd Tactical Zone later, including one VC engineer company.

4. Capt. Kieu was killed at Dakakoi in Kontum Province on 16 September 61. His diary revealed that he crossed the 17th parallel on 11 June, entering Kontum Province on 13 August. His unit consisted of company cadre, 37 men. Four men failed to complete the journey and only 33 men reached Kontum Province on 13 August 1961. He then recruited VC and KV until he had a 57-man company (3 platoons with 16 per platoon and 9 in the Hq.). Each platoon
was equipped with 3 ARs, 3 SMGs, and the remaining members carried rifles. Capt. Kieu's company participated in the attack on the Konbrai outpost on 8 Sept 61.

5. M/Sgt Tan was captured in Saigon on 14 Sept 61. He had been platoon leader of the 2nd Platoon/2nd Co/2nd Sep VC Bn, all men of which who were originally from South VN but who had moved to the north in 1954 and subsequently infiltrated back into South VN. His unit entered South VN from Laos o/a 20 June 61 and moved through Quang Nam, Kontum, and Pleiku Provinces, stopping in Darlac Province, on 16 Aug 61. He stated upon capture that there were only 145 men in his battalion. He went AWOL shortly after arrival in Darlac Province, leading to his capture in Saigon on 14 Sept 61.

6. Aidman Phong's diary was found on 3 Oct 61 at AQ 800283 in the 23rd Tactical Zone. The diary revealed that he had crossed the border into South VN from Laos on 1 June 1961, entering Kontum Province on 10 June. On 7 Aug, he moved into Darlac Province and back into Kontum Province again on 7 August 61. His unit's designation was not revealed.

Lt. Nguyen Van Than's diary was captured in the Hai Long I Operation in the VC Konhannung safe zone of 31 March 62. Than's company, with only 2 Platoons, had left Hanoi on 23 April 61, moved through Laos and crossed over into South Vietnam. The company base was established in the vicinity of the Konhannung safe zone and it participated in the attack on the Tu Thuy post on 2 Sept 61. The diary covers the period from April 61 through the end of that year and has not been completely evaluated as of this date.
U.S. ADVISOR DETACHMENT
23rd INFANTRY DIVISION
BAN ME THUOT, VIETNAM

5 April 1962

SUBJECT: Border Infiltration

TO: Senior Advisor
II Corps
Pleiku, Vietnam

1. Reference is made to letter, your headquarters, file number MAGTH-PL, subject as above, dated 1 April 1962.

2. Following is a narrative summary of VC infiltration reports in this area since June 1961:

a. On 3 July 1961, it was reported by a VC prisoner of war that approximately 200 VC were located north of Ban Me Thuot. This unit was reported to have infiltrated from North Vietnam and had entered this area by a route generally parallel to Highway No. 14; eighty per cent were armed with individual weapons. Six automatic rifles and an unknown number of 60-mm mortars were carried by the group. The unit is believed to be currently operating in an area approximately 30 km north of Ban Me Thuot.

Evaluation: It is generally accepted that there are several groups of VC north of Ban Me Thuot. They are believed to possess the capability of marsing for company-size attacks. (A VC MSgt was captured in March 1962 45-km northwest of Ban Me Thuot who claimed he was part of a battalion organization in that area. He stated that battalion was commanded by a Rhode and the executive officer was Vietnamese. However, he could not make an estimate of the size of the forces since they were scattered in small groups). The report is considered factual; however, the size of the group may be subject to question.

b. On 8 July 1961, it was reported by a VC prisoner of war that approximately 300 VC, all of which were Vietnamese, infiltrated from North Vietnam to an area north of Ban Me Thuot. The unit entered by a route generally parallel to Highway No. 14. Eighty per cent were armed with individual weapons. Some automatic rifles and recoilless rifles reported carried by the unit. The unit is believed to be currently operating in the B. Trum and Ba Nao areas north of Ban Me Thuot.

Evaluation: The report is considered factual. The number of infiltrations are questionable. Frequent activity by VC elements in
these areas has been noted. However, no large scale raids or attacks are recorded. It is possible that the smaller units are a part of a larger organization of the reported strength.

c. On 16 August 1961, it was reported by a VC prisoner of war that 180 VC infiltrated from North Vietnam to an area north of Ban Me Thuot. The unit entered this area by a route generally parallel to Highway No. 14. Eighty per cent were armed with individual weapons. An unknown number of automatic rifles and 60-mm mortars were carried by the unit. The PW reported that the element was composed of regular forces from North Vietnam. It is believed to be currently operating somewhere in the Delta Region.

Evaluation: This information is considered valid. On 16 Aug 61 a Ranger Platoon clashed with a VC unit between Ban Me Thuot and Ban Don Outpost. 15 VC were KIA and 8 captured. Documents obtained and information submitted by POWs disclosed the unit was passing through this region enroute to Delta Area.

d. On 8 September 1961, it was reported by the Security Service that approximately 200 VC infiltrated into vicinity B. Trong BQ 430005 from Phu Yen Province. The unit was reported to be equipped with individual weapons and a number of automatic rifles and cal .30 machine guns. The primary purpose of this movement was to establish a base of operations at B. Tang Rang, M'Gan and Ea Chau and to establish contacts with VC in the To Hap area. A secondary purpose was to increase VC activity to the east and south of Lac Thi en, south of Ban Me Thuot.

Evaluation: The To Hap area has been considered a VC stronghold for several months as well as the Lac Thi en area. It seems logical that this reported attempt to link two strongholds together would enhance the program apparently in progress since last June, i.e., that of improving organization and control of VC units.

e. In September 1961, it was reported by a VC prisoner of war that approximately 200 VC infiltrated from North Vietnam, through Laos, to the Kontum area, to Cambodia, through the Cambodia-Pleiku border and into the 23rd Tactical Area through Chu D levy and B. Ay Tou. This unit, which carried the title "South of Vietnam" and was armed with individual weapons, departed from North Vietnam in June 1961. It arrived in Darlac Province approximately September 1961. The unit was accompanied by a VC Montagnard team of 26 men (the Montagnard team from the 2nd VC BN/120). On arrival at Tuyen Duc Province the VC Montagnard team redesignated 84/1 and assigned a propaganda mission, operating north of Lac Duong.

Evaluation: The information is believed valid. Numerous reports indicate selected Montagnards have been sent to the north for training and returned to home areas for use as recruiters and leaders. The changing of unit designation is common practice. In most instances the names of Vietnamese from the north are changed prior to infiltration.
f. On 28 September 1961, Binh Thuan Province Security Office reported three VC companies were landed on the coast at KN 250250. Weapons and equipment carriers were not reported. No further information concerning further disposition of these units is available.

Evaluation: The information is doubtful. However, if the landing did occur it is believed the units moved either to the southwest of Phan Thiet or on to the Delta region. An operation in this area was conducted by 23rd Division in December 1961. Of the VC who were killed or captured, all were identified as local people.

g. On 7 November 1961, it was reported by an intelligence agent that an estimated company was located at CP 030396. This unit moved toward Lo May, BP 896350 on 8 November after an air strike. The unit was believed to be an element of a main force infiltrating from the sea toward the Delta Region.

Evaluation: The report is questionable. There probably was a VC force in the area but source submitted no information to support an allegation that this was part of a main force moving toward the south, nor that it had entered this country from the sea.

h. On 12 November 1961, it was reported from Quang Duc Province that one VC Platoon equipped with individual weapons and AR's was located at YU 642545. It is believed that this unit moved to the Quang Duc area from Cambodia. The VC unit withdrew to the Cambodian border after clashing with an ARVN unit.

Evaluation: Report is considered valid. Since the unit withdrew to the Cambodian border sanctuary it is probable that it had infiltrated from that direction.

i. On 8 December 1961, the Security Service reported that a VC element of approximately company size was landed on the coast at CN 040960 (Ninh Thuan Province). The report stated weapons included a new type called "Sung Nua Troi." No further reports have been made to indicate where the unit moved. It is assumed, however, that this group had a mission of reinforcing VC coastal elements.

Evaluation: Report is questionable. No evidence of "new type" weapon is available. No further information on this element has been reported.

j. On 31 December 1961, it was reported by an intelligence agent that an estimated 100 VC equipped with 3 mortars, 3 SCR-300 radios, and 10 elephants crossed the river Krong Kuo (Srepak), near E. W'Drach ZI 055200. It is believed that this force infiltrated into the area of Ban Me Thuot using secret trails and later crossed Highway No. 14 into the Quang Duc area.

Evaluation: There is no additional information to link this movement with a border crossing, and it is hardly conceivable that a
well-equipped element of this size could move from the northern border through South Vietnam to this location without being discovered. (Numerous VC units are known to be currently operating in this area).

k. On 7 March 1962, it was reported that four VC armed with MAT 49's (French rifles) were located in the area ZV 232692. This report was confirmed by G-2/23rd TA when a division unit contacted 4 VC on 27 Mar 1962 at ZV 232692. According to captured items and documents it is believed that the cadre infiltrated into this area from the north.

Evaluation: Report is considered valid. Four new rucksacks were confiscated which were well stocked with medical supplies and other items. All identification marks have been removed; however, 17 blocks of the TNT were identified as other than VN, French, or U.S. origin.

l. Higher headquarters informed Headquarters 23rd Division that on 9 March 1962 a force of three battalions (132, 134, 142) with individual weapons, AR's, SMG's, and 60-mm mortars, was located 60 km northwest of Pleiku (IA 7223). This large force was reported to have infiltrated into Vietnam, via Laos, Cambodia, Kontum, Pleiku to avoid detection.

Evaluation: The reported infiltration of the three battalions cannot be evaluated without additional information. No additional reports on these units have been received since initial notification.

m. The Security Police reported that on 14 March 1962, a VC force estimated at two battalions equipped with individual weapons, AR's, 60-mm mortars, and machine guns, infiltrated into southwest Darlac (BP 334812 - Bq 371130). Force allegedly traversed a secret communications trail from Phu Yen to Ea Chau generally following Highway No. 21 (near border of Darlac and Khanh Hoa).

Evaluation: No additional reports have been received which would substantiate location of such a sizeable force.

3. An estimate of present infiltration rate within the 23rd Tactical Area would at best be hazardous, due to the fact that much infiltration occurs from the northern sectors of the II Corps zone even though enemy agents have come from outside South Vietnam. The incidents shown in para. 2 above include four true border crossings as such.

WILLIAM T. GORDON
Lt. Col., Inf
Senior Advisor
File: MAGSN-SA-C

Subject: BORDER INFILTRATION (U)

To: Commander
US Military Assistance Cmd
Saigon, Vietnam
Attn: AC of S, J2

From: Senior Advisor
III Corps Adv Det

Date: 17 April 1962
Capt Reardon/jyk/50228

1. (U) Reference, Confidential Message MACV 232, subject, as above, dated 31 March 1962.

2. (C) a. In compliance with reference 1 above, the attached Border Infiltration report is submitted. Information contained in this report was obtained from the following sources:

   (1) G2 Advisor, 5th Division
   (2) G2 Advisor, 7th Division
   (3) G2 Advisor, 21st Division
   (4) G2 3rd ARVN Corps

   b. Reports of this nature are subject to varying degrees of evaluation; however, the information contained herein can be categorized as reliable and probably true.

   c. ARVN records on Border Infiltration do not contain sufficient information for the completion of this report, and it is estimated that only a small portion of the many infiltrations are recorded herein.

3. (C) The following is a narrative summary of VC Border Infiltration reports available in the III Corps area from June 1961 to present.

   a. On 18 July 61, one unit, strength and identity unknown, moved into III Corps Area from the North. The sighting was at coords YU 380095.

   b. On 29 July 61, 100 men, wearing grey uniforms and hats covered with nylon, moved along the Cambodian side of the border from coords WT 932010, then infiltrated the Vietnamese border at Talot, coords XS 120990.

   c. On 8 Aug 61, one company, wearing blue uniforms, entered III Corps Area from the North. The sighting was at Pho Binh, coords XT 620725.
d. On 3 Sept 61, 200 men, equipped with one mortar entered SVN from Cambodia. This unit was sighted at coords XS 389975.

e. On 23 Sept 61, 100 infiltrators moved into SVN by sea. Location of infiltration, coords YS 672580.

f. On 25 Nov 61, 300 VC crossed the Cambodian border at coords WT 220050.

g. On 30 Dec 61, a 4-man squad crossed the border at XU 565042.

h. On 16 Jan 62, 700 men, equipped with 7 BARs and (2) 60-mm mortars moved along the Cambodian border and infiltrated at coords XT 315020.

i. During period 28 Jan-8 Feb 62, 1000 men crossed the border at YU 392597. Approximately one month later they were reported in Phuoc Thanh Province.

j. On 4 Feb 62, one squad crossed border at XT 545911.

k. On 7 Feb 62, one VC General named Lam Thai Hoa, entered SVN from Cambodia. He was last reported at coords XT 035694.

l. On 8 Feb 62, one squad crossed border at XU 841238. Destination unknown.

m. On 16 Feb 62, Ranger and C3 forces made contact with one (1) platoon at WT 425057. VC platoon escaped across the Cambodian border.

n. On 4 Mar 62, unknown number of VC crossed border at coords XT 403928. Destination unknown.

o. On Mar 1962, an estimated Cambodian Battalion, wearing fatigues with French insignia, crossed border between coords WT 995431 and WT 994471. Destination was Phuoc Tan, vicinity coords XT 020436.

p. On 10 Mar 62, one company crossed border at XT 197267, attacked SDC post at XT 228315. After destroying post, the company withdrew across Cambodian border.

4. (C) It is considered that the primary crossing points in the III Tactical Area lie in the 33rd TACZ. These crossing points are located at coords WT 225055, WS 080825, WS 001785, VS 945740, VS 925715, VS 655635, and VS 415520.

5. (C) The total monthly border infiltration in the III Corps area during the period June 1961 to present is as follows:
<table>
<thead>
<tr>
<th>Month</th>
<th>No. of Infiltrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 61</td>
<td>0</td>
</tr>
<tr>
<td>July 61</td>
<td>2</td>
</tr>
<tr>
<td>Aug 61</td>
<td>1</td>
</tr>
<tr>
<td>Sept 61</td>
<td>2</td>
</tr>
<tr>
<td>Oct 61</td>
<td>0</td>
</tr>
<tr>
<td>Nov 61</td>
<td>1</td>
</tr>
<tr>
<td>Dec 61</td>
<td>1</td>
</tr>
<tr>
<td>Jan 62</td>
<td>2</td>
</tr>
<tr>
<td>Feb 62</td>
<td>3</td>
</tr>
<tr>
<td>March 62</td>
<td>3</td>
</tr>
</tbody>
</table>

6. (C) The estimate of present infiltration rate, based on para. 5 above is 1.7 infiltrations per month. Due to the lack of information on border infiltration available, this rate has little significance.

DANIEL B. PORTER, Jr.
Colonel, Inf.
Senior Advisor
SELECTED EXCERPTS FROM "VIET CONG INFILTRATION"

by MACV J2J3
(20 March 1963)

Of major significance is the statement in a Viet Cong document that during the first half of 1962 a total of 3783 men, all of whom were members of large groups, were guided through B province (probably Darlac) and that 55-1/2 tons of rice and 30 tons of field rations were issued.... Some of the men were undoubtedly members of units which were being transferred internally among provinces, but the major part is probably due to infiltrated units.

Viet Cong plans for 1963 appear to emphasize the strengthening of both the political and military headquarters of the Military Regions and the increase of their main force units. Information thus far only partially confirmed indicates that from a military organizational point of view the Viet Cong are building toward regimental size units. Three regimental staff organizations have been identified in MR 5, one is in the planning stage in MR 6 and two as yet unconfirmed are reported in the Zone D area. The establishment of these regiments is largely dependent on the successful infiltration of officers and NCO cadre.

The Viet Cong are believed to have the capability of infiltrating groups of up to 500 men in one-week intervals during the dry season. Limited logistic support for such large-scale accelerated operations could be provided by DRV units located in Southern Laos.

There are no indications that the infiltration rate for 1963 will exceed that of 1962.
Appendix B

INSTALLATION COST ESTIMATES FOR BARRIER CONTROL

J. M. Carrier

The estimation of the cost of establishing a barrier control may be conveniently divided into the cost of clearing a path along the border and the labor and materials required for the barriers themselves. The labor estimates used in this appendix are based on the productivity of U.S. labor. Adjustments should be made for the different productivity of Vietnamese labor.

The Cost of Clearing Land in Vietnam

The cost of clearing land is dependent primarily on the density of the vegetation, the type of terrain (flat, hilly, mountainous, etc.), the accessibility of the area, and whether the job is to be carried out as a capital-intensive or labor-intensive operation. The latter uses the minimum amount of heavy construction equipment, such as bulldozers, the capital-intensive operation uses a maximum of large land clearing machines, such as the Le Tourneau electric "tree crusher." However, in either case, a detailed terrain analysis would be required for an accurate estimate. For SVN this is not possible, so next-best estimates are obtained by applying generalized cost estimating factors to a general view of the land border.

One-third of SVN's 900-mi land border abuts Laos and is almost all heavily forested, rugged, and mountainous. Slopes, except for a few sections amounting to about 50 mi close to the northern end of the border, are considered to be between 25 to 40 per cent. The remaining 600 mi of the border is with Cambodia. With the exception of about 130 mi, this border passes through terrain that is essentially flat or gently rolling to hilly. The first 50 mi south from the meeting point of Laos, Cambodia, and South Vietnam are mountainous, with forested slopes ranging from 25 to 40 per cent. Another stretch of forested mountainous territory, with slopes ranging from 5 to 25 per cent, extends for nearly 80 mi, starting about 140 mi south of the
same junction point. A length of about 70 mi between these two mountaneous areas may be described as hilly, with slopes commonly less than 5 per cent. South of the second mountaneous area for about 150 mi the border passes through forested areas that gradually change from being hilly to gently rolling to nearly level, with slopes commonly less than 5 per cent. For the remaining 250 mi to the South China Sea the border winds through the flat delta country of the Mekong river. Much of this area is inundated seasonally, and all cultivable parts are used for growing rice.

Summarizing in tabular form:

<table>
<thead>
<tr>
<th>Slope Class</th>
<th>Miles of Border</th>
<th>Vegetation</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 to 40 per cent</td>
<td>300</td>
<td>mostly forested</td>
</tr>
<tr>
<td>5 to 25 per cent</td>
<td>130</td>
<td>mostly forested</td>
</tr>
<tr>
<td>less than 5 per cent</td>
<td>220</td>
<td>mostly forested</td>
</tr>
<tr>
<td>flat delta</td>
<td>250</td>
<td>swamps and rice fields</td>
</tr>
</tbody>
</table>

Thus, in clearing, approximately two-thirds of the border would require deforestation. The 250 mi of flat delta country would require very little clearing, but would present a special problem because much of it is covered with 5 to 15 ft of water almost half of the year.

For the labor-intensive case the following are estimates of clearing man-hour costs per acre for varying slopes, normalized to dense timber and medium brush:

<table>
<thead>
<tr>
<th>Slope Class</th>
<th>Clearing Manhours per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>34 per cent and above</td>
<td>340</td>
</tr>
<tr>
<td>20 to 34 per cent</td>
<td>385</td>
</tr>
<tr>
<td>10 to 20 per cent</td>
<td>410</td>
</tr>
<tr>
<td>0 to 10 per cent</td>
<td>439</td>
</tr>
</tbody>
</table>

While these categories of slope do not coincide with the earlier ones, they can be tied together for a rough approximation. A 100-yd-wide strip is assumed, so that 36.4 acres must be cleared for each linear mile. Next, one can estimate the manhours required for clearing the border:
Slope Class | Border Acres | Manhours Per Acre | Total Clearing Manhours
---|---|---|---
25 to 40 per cent | 10,920 | 385 | 4.2 million
5 to 25 per cent | 4,732 | 410 | 1.9 million
less than 5 per cent | 8,008 | 439 | 3.5 million

Total Border Clearing: 9.6 million manhours (except Delta)

In order to arrive at a dollar cost for the labor-intensive case, the manhours must be converted to an hourly cost rate that includes labor, equipment such as portable motor handsaws, bulldozers, etc., supplies, and support personnel. Using Vietnamese labor and assuming the equipment and labor productivity in the above estimates apply to Vietnam, the manhour cost should be somewhere in the neighborhood of $.50, so that the total clearing cost (excluding the Delta) using the labor-intensive method should be about $5 million.

For the capital-intensive case, we shall assume the use of Le Tourneau G-40 electric tree crushers and Caterpillar D-8 tractors with hydraulic bulldozer blades. The electric tree crushers have been used in a variety of terrain situations, particularly in clearing operations in U.S. forests and in Peruvian tropical forests. The G-40 model has been worked on slopes up to 45 degrees and can clear from 3 to 7 acres per hour. In Peru, where tropical forests with heavy thick undergrowth were cleared for a housing and agricultural project, the G-40s cleared an average of 3 acres per hour. Again, for a 100-yard-wide strip, 36.4 acres per linear mile require 23,660 acres to be cleared for the 650 miles of border. Assuming bounds of 3 and 7 acres per hour in Vietnam for the G-40, one can estimate the cost as follows:
<table>
<thead>
<tr>
<th>Acres per Hour</th>
<th>Hours of Machine Time*</th>
<th>G-40 Operating Cost at $10 per hr</th>
<th>Cost of G-40 Machines</th>
<th>Total Cost without bulldozers</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>7887</td>
<td>$78,870</td>
<td>$855,000</td>
<td>$933,870</td>
</tr>
<tr>
<td>7</td>
<td>3380</td>
<td>33,800</td>
<td>855,000</td>
<td>888,500</td>
</tr>
</tbody>
</table>

The above cost should be increased by $50,000 for each D-8 bulldozer. Even with 10 bulldozers added, the total would be raised only to little more than $1.4 million, or about $2200 per mile for the clearing operation. With 10 machines clearing 3 acres per hour, 30 hr per week, the total clearing job would take about six months; at 7 acres per hour between two and three months. Time could be "bought" with additional equipment.

These estimates do not include a number of perhaps rather important costs such as the troops required to guard the workers, the cost of moving supplies into the remote highlands, etc. As they stand, however, they suggest that the capital-intensive method is less expensive and that in either case the cost of land clearing is not prohibitive.

The Cost of Erecting Barriers

Barrier construction costs are dependent primarily on the elaborateness of the structure. Lowest per mile costs, about $1600 for labor and materials, are exemplified by a non-electric 5-ft high barrier composed of a single apron of common barbed wire strung on metal pickets. From this point the cost per mile increases according to the height of the fences, amount and type of wire used, and whether electrification or other antipersonnel devices are included. The most significant increase in cost would be for electrification.

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* The number of hours of machine time required to clear the 23,660 acres.

** This assumes that the machines are fully depreciated at the end of the job, perhaps an overstatement on the price since Le Tourneau depreciates the G-40 in a 20,000-hr period. However, removal and transportation to another useful site must also be considered in estimating their residual value.
Assuming that at least a double apron fence with corrosion resistant wire strung on metal pickets would be required as a minimum, and a high wire fence topped by a concertina might be a maximum, the range of costs for labor and materials would run between $2500 and $8000 per mile. Since combinations of these fences, such as two of each type, parallel, would be used in constructing a barrier, fencing costs would be at least $20,000 per mile. However, an electric fence would cost, depending on terrain, somewhere between $275,000 and $750,000 per mile, so that other fence costs are essentially minor details in comparison. The use of mines or other intruder detector devices also would represent significant increases in cost. For example, emplacing an antipersonnel minefield would cost about $80,000 per mile.

Cost information on actual border control barriers is quite limited. Information on the Algerian barrages, though sketchy, indicates that one 25-mi section without electrification, mines, etc., cost $20,000 per mile. Unfortunately, this cost figure is not tied to a carefully described section of fence. One description of the Algerian-Moroccan barrage notes that there were two low wire fences (about 5-ft high) spaced up to 40 yd apart, with an electric fence about 10-ft high in the center, and 10-yd-wide barbed wire entanglements between the center and each outside fence. The barrage was not a static thing; new devices were continually being added.

Summary

In summary, a border barrier without electrification along the 900-mi border of Vietnam would cost at least $25 million. The use of mines or other antipersonnel devices could easily quadruple this figure. Adding an electric fence would jump total expenditures to at least $250 million.
Appendix C

BARRIER CONTROL MANNING ESTIMATES

J. M. Carrier

Manning data for past and present border control situations can be used as a basis for estimating personnel needs for effective control of a projected border barrier. The data should relate required personnel to given lengths of specific types of border barriers set up in different terrain situations; each case would take into account the level of manning and the percentage of effectiveness in preventing border violations. Sufficient data at this level of detail, however, are not available; and information on the effectiveness of the border guards in preventing border violations is sketchy and incomplete.*

The data available provide only the total number of border guards and the total miles of land border. Also, the distinction between border guards and other ground troops and internal security forces is not consistent. However, the data are useful for establishing the number of border personnel required per mile for two essentially different control situations that represent perhaps the minimum and maximum demand for personnel. Both are for relatively tight border control, but whereas one is carried out along a relatively peaceful border, the other is along a tense border. The former is represented by the border control manning of communist countries of Eastern Europe and the Soviet Union; the latter by the manning used by the French along the borders of Algeria during the French-Algerian conflict, and present manning along the Berlin Wall. None of the border control manning estimates includes ground force requirements for defense against full scale invasion forces.

*Reference 3 states that 12,000 East Germans escaped through the Berlin Wall in its first year. The current escape rate is estimated at 20 to 25 per month. Previous to the Wall the flow of refugees had peaked at 2,000 per day. On the Algerian closed borders, from early 1959 on, only an occasional one or two men made it through; outside were about 30 battalions waiting to cross. (5)
The data suggest that for countries where the general objective is to contain population under relatively peaceful circumstances the number of men per mile is about 14, regardless of the length of the land border, which varies in the sample from 300 to 2200 mi. Tighter, non-peaceful control situations require considerably higher manning; Algeria, for example, averaged at least 50 men per mile, and Berlin at present is believed to have about 110 men per mile.

The range of the data indicates that for South Vietnam 13,000 trained border guards would be required to provide even a minimum border control of 900 mi. However, since a tight border control is called for, the number would more likely approach the maximum—about 100,000 border guards.

*In Ref. 11, MAAG has estimated the force requirement at 15 to 38 divisions.
Appendix D

PATROL SHIP REQUIREMENTS--TERRITORIAL WATERS CONTROL

This appendix shows the relations among target ship speeds, patrol ship spacing, and patrol ship speed for territorial-waters control.

Two cases are considered. For both, it is assumed that the patrol ships are within territorial waters and that the patrol must capture a target ship located initially at the three-mile limit and midway between two patrol ships. The target ship heads directly in toward shore, spends five minutes on shore, and then heads directly out to sea.

In the first case capture on the beach is required; i.e., the patrol ship must reach the target ship prior to its leaving the beach. In the second case, the patrol ship must reach the target ship before it reaches the three-mile limit, outbound.

The speed requirements for the patrol ships for the two cases are shown in Fig. 12. These speeds are absolute minimum speeds; they have been computed based on lateral movement only, without any consideration of evasive tactics on the part of the target ship.

In the example, a beach capture of a target ship having a speed of 6 knots is required, and the patrol ships are spaced 20 n mi apart. The patrol ship must have a speed of at least 17.2 knots. For a later capture of a 6-kn target ship, with patrol ship spacing of 20 n mi, a patrol ship must have a speed of nearly 10 kn.
Fig. 12 — Patrol ship speed requirements
Appendix E

ORGANIZED HAMLETS

This listing of organized hamlet descriptions and definitions is not exhaustive, but includes the most commonly used names.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Emphasis</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| Strategic Hamlet in Zone A and B\(^a\) | 1. Administrative reorganization and population control  
2. Security  
3. Improvement of living conditions  
4. Relocation | Established in reasonably secure areas; involves minimal relocation of people and construction of a defense perimeter generally in accordance with existing hamlet configurations. |
| Combat Hamlet (Strategic Hamlet in Zone C\(^a\)) | 1. Security and relocation  
2. Administrative reorganization and population control | Name given to strategic hamlets established in or on the periphery of VC-controlled areas. Often involves extensive relocation of people. Occasionally called fighting hamlet, secure hamlet, and defended hamlet. |
| Agro-hamlet                          | Tighter control and fewer privileges than combat hamlet                   | Established for surrendered or captured VC personnel and VC sympathizers, and used as rehabilitation centers. |
| Self-defense Village                 |                                                                          | Composed of several constituent strategic hamlets.                      |
| Agro-zone                            |                                                                          | Characterized by regrouping of people living in dispersed areas into a single zone. |
| Agro-ville                           |                                                                          | Large new villages or towns intended to attract new residents.            |
| Land Development Center              |                                                                          | Reclamation of land for agricultural use by volunteers on a large scale.  |

\(^a\) Zone A = under GVN control  
B = contested  
C = under VC control
REFERENCES


11. Plan for Reduction of Border Infiltration (preliminary working paper leading to Ref. 12), undated (Secret).


