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**EVALUATION OF HERBICIDE OPERATIONS
IN THE REPUBLIC OF VIETNAM AS OF
30 APRIL 1966**

**Military Assistance Command, Vietnam
APO San Francisco 96243**

12 July 1966

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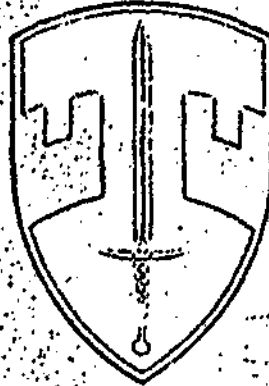
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EVALUATION OF HERBICIDE OPERATIONS IN RVN (u)

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BRIEF

ALTHOUGH THE HERBICIDAL CROP DESTRUCTION AND DEFOLIATION PROGRAMS IN SOUTH VIETNAM HAVE BEEN IMPLEMENTED WITH CAUTION AND SUBJECTED TO FREQUENT RE-EVALUATION, SOME DOUBT PERSISTS CONCERNING THE BALANCE BETWEEN THE RESULTING ADVERSE IMPACT ON THE VIET CONG AND THE ADVERSE IMPACT ON ALLIED EFFORTS CAUSED BY THE POSSIBLE ALIENATION OF CIVILIANS. THIS STUDY REVIEWS EXISTING EVIDENCE AND CONCLUDES THAT, AT THE PRESENT TIME, THE ADVANTAGES TO THE ALLIED FORCES FROM BOTH PROGRAMS SIGNIFICANTLY OUTWEIGH THE DISADVANTAGES. MORE-OVER, THIS FAVORABLE BALANCE SHOULD SUPPORT A CONSIDERABLE ACCELERATION OF THE PROGRAMS.

CROP DESTRUCTION, CONDUCTED ON A LIMITED SCALE, HAS NOT SIGNIFICANTLY AFFECTED OVERALL VC FOOD SUPPLIES, BUT HAS CAUSED LOGISTICAL DIFFICULTIES, DIVERSIONS OF MANPOWER, SOME DETERIORATION OF MORALE, AND AT LEAST TEMPORARY FOOD SHORTAGES IN THE TARGET AREAS. VC LOSS OF EFFECTIVE PUBLIC SUPPORT DUE TO THE FLOW OF REFUGEES FROM THE VC-CONTROLLED TARGET AREAS AND THE DEMORALIZATION OF THOSE REMAINING PROBABLY HAS OUTWEIGHED GAINS OF ADDITIONAL VOLUNTARY SUPPORT. CIVILIANS IN THE TARGET AREAS HAVE SUFFERED SEVERE HARDSHIPS, AND MUCH, BUT NOT ALL, OF THEIR RESENTMENT HAS BEEN DIRECTED TOWARD THE US AND GVN. THUS, IN THE TARGET AREAS, THE IMPACT PROBABLY HAS BEEN ADVERSE TO THE GOAL OF GAINING POPULAR SUPPORT FOR THE GVN. IN NON-TARGET AREAS, HOWEVER, NO SIGNIFICANT IMPACT HAS BEEN APPARENT.

DEFOLIATION OPERATIONS HAVE BEEN GENERALLY EFFECTIVE IN INCREASING THE SECURITY OF FRIENDLY INSTALLATIONS AND LINES OF COMMUNICATION AND, ON A LIMITED SCALE, IN CAUSING SOME DISRUPTION OF VC MOVEMENT. VC BASE AREAS ALSO HAVE BEEN RENDERED MORE VULNERABLE TO ATTACK, AND THE VC HAVE EVACUATED THOSE AREAS. RESENTMENT TOWARD THE US AND GVN CAUSED BY THE UNINTENTIONAL DESTRUCTION OF CIVILIAN CROPS IS A SERIOUS PROBLEM, ESPECIALLY SINCE MANY OF THE AFFECTED PERSONS DO NOT LIVE UNDER VC CONTROL, BUT IT DOES NOT OUTWEIGH THE ADVANTAGES OF THE PROGRAM.

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EVALUATION OF HERBICIDE OPERATIONS IN THE REPUBLIC OF VIETNAM

I. INTRODUCTION.

A. Purpose. The purpose of this study is to determine and evaluate the benefits and detriments accruing to the Allied Forces from herbicide operations conducted in the Republic of Vietnam (RVN).

B. Scope. This study focuses on conditions that exist among the enemy and the civilian population which are attributable, at least in part, to the employment of herbicides in RVN. Administrative and operational aspects of the herbicide program are not considered except for background purposes. Moreover, while various other RVN and US programs—including other aspects of resources control, paywar operations, the refugee program, and the program for compensation for civilian damage — have an important bearing on the impact of herbicide operations and are considered in the course of this study, no attempt is made to systematically evaluate those programs.

II. DISCUSSION.

A. Background.

1. Purposes of Herbicide Operations. Herbicide operations are conducted by military forces in RVN for two basic purposes: crop destruction and defoliation. As a part of Allied economic warfare efforts, herbicidal crop destruction operations are designed to weaken the Viet Cong war effort by denying them certain sources of food supply. Aerial spraying of nontoxic herbicides destroys VC crops and civilian crops which otherwise would accrue in substantial part to the VC and which cannot feasibly be protected from the VC or secured for GVN utilization or distribution. Herbicide operations do not encompass the destruction of harvested foodstuffs. Defoliation operations are utilized to destroy or control natural vegetation, thereby exposing the sprayed area to better visual observation and making enemy installations and activities more easily detectable.

2. Extent of Herbicide Operations.

a. From the beginning of herbicidal crop destruction operations in 1962 until mid-March 1966, approximately 39,000 hectares (roughly 96,000 acres) of cultivated land were sprayed. (See Annex A.) Operations have been conducted in various marginal or deficit production areas under VC control, but have not been authorized in IV Corps Tactical Zones, where there is a food surplus and where limited crop destruction would have minimal immediate impact on the VC.

b. From 1962 through February 1966, C-123 aircraft conducted defoliation operations over approximately 123,000 hectares (about 316,000 acres) of vegetation throughout RVN. (See Annex A.) In addition, limited

experimental defoliation was conducted in 1961, and spraying has been conducted on a small scale by helicopters, hand spray pumps, and "Buffalo" turbines.

B. Crop Destruction Operations.

1. Impact on the Viet Cong.

a. Effect on Food Supply.

(1) It has been estimated that in 1965 enough foodstuffs, primarily manioc, sweet potatoes, and rice, to feed about 245,000 people for one year were destroyed by herbicide operations.¹ Because many of the destroyed crops belonged to civilians, the total amount destroyed cannot be considered to be a direct detriment to the VC troops and cadre. The destroyed civilian crops were located, however, in areas under VC control or influence. Therefore, a substantial proportion of the yield would have accrued to the VC as a result of production taxes, forced and voluntary sales, and contributions.² As much as 70 to 80 percent of civilian production in some sprayed areas goes to the VC,³ but demands vary in different areas, and a precise overall percentage accruing to the VC from all target areas cannot be determined.

(2) In addition to the loss of destroyed crops, the VC have in some instances been unable to purchase food because of civilian hoarding caused by fear of herbicide operations.⁴ Moreover, crop destruction often produces a substantial flow of refugees to GVN-controlled areas, and the VC lose all benefits from the future productive efforts of these people.⁵ VC gains from confiscation of property left by refugees normally do not compensate for this loss.⁶

(3) Past crop destruction operations have been on a fairly limited scale. In 1965 only about one percent of the total food production of the country was destroyed.⁷ The operations were conducted, however, in marginal or deficit production areas, and the adverse impact on the VC has been greater than this low percentage might indicate. Although there have been few instances of starvation conditions,⁸ numerous cases of temporary food shortages are attributable to crop destruction operations.⁹ For example, one captive reported that his food ration had been reduced by approximately half after a crop destruction operation in his area.¹⁰ Such shortages are often evidenced by subsequent unusual VC efforts to purchase, steal, or transport food from other areas.¹¹ In a few cases, however, herbicide operations which effectively destroyed crops in the target area have had no appreciable effect on the food supply of units in the area, because of readily available sources in nearby areas.¹²

(4) Perhaps the best indications of the effectiveness of herbicide operations are the VC's own reports of food shortages and the complaints they voice concerning chemical crop destruction operations.

According to Sgts Smith and McClure, who were held captive by the VC in Tay Ninh Province, "the VC complained longer and more bitterly about defoliation and crop destruction than any other weapon used against them. A significant reduction in their food supply and their shelter and concealment was caused by it."¹³ Moreover, a VC Activity Report for 1965 from Tay Ninh Province stated, "the spraying of defoliant caused substantial damage to the crops and thus compelled a number of farmers to move into strategic hamlets.... Farm production is not very optimistic since crops were affected by the fighting and the spraying of chemicals."¹⁴ Another VC document reports the "calamities" and "disaster" caused by crop destruction operations in Binh Dinh Province.¹⁵ Similar complaints are increasingly common.¹⁶

(5) The general effectiveness of herbicide operations, both crop destruction and defoliation, is also indicated by VC concern over formulating effective plans for countering aerial spraying.¹⁷ VC troops are generally ordered to fire on aircraft spraying chemicals, even though they may expose their positions.¹⁸ The frequency of hits suffered by the aircraft indicates that the VC determinedly attempt, although unsuccessfully, to counter herbicide operations.¹⁹ The recent intensity of NVN and VC propaganda directed at herbicide operations, although principally designed to influence world opinion, probably also indicates the general effectiveness of crop destruction operations. (See Annex B)

(6) In addition to the loss from destruction of crops, some VC units suffer because of misconceptions, apparently caused by their own propaganda, concerning the effects of herbicides. The belief persists among some VC, even those in areas that have been sprayed, that sprayed food and water cannot be consumed,²⁰ and that the spray has residual effects on the soil.²¹ Even VC leaders in some instances are affected by such misconceptions. For example, one official VC document indicates plans to "research the utilization of charcoals and ashes to counteract the effects of poison, to draw the poison out of the surfaces of rice seeds and coconut in order to utilize them" and directs that livestock not be grazed in sprayed areas or given food that has been sprayed.²² Moreover, courses given to first aid personnel have included instruction that sprayed food is to be washed with "antibiotic medicine" before it is eaten and that if there is doubt about food it should be tested on animals.²³ In spite of propaganda many VC do eat sprayed food,²⁴ immediately replant sprayed fields,²⁵ and generally recognize the actual effects of herbicides. Since crop destruction operations are often repeated in the same area, misconceptions as to the effects of such operations undoubtedly will become less common.

b. Effect on Logistics and Operations.

(1) The loss of substantial quantities of foodstuffs in an area necessitates replacement from other sources if VC troops are to continue to occupy or operate within that area. In some areas, attempts have been made to offset partially the impact of crop destruction by increased emphasis on animal husbandry and wildlife preservation.²⁶

However, the VC dietary staples, rice and vegetables, must be procured by production, taxation, purchases, and military operations in other areas.

(2) Even when adequate food is obtainable elsewhere, substantial difficulties exist. The necessity of transporting additional quantities of food places a considerable strain on the VC logistic system, which relies heavily on human carriers.²⁷ This strain is sometimes aggravated by the reduction of both civilian and military manpower sources caused by refugee movement from the target areas. In addition, in areas regularly subject to herbicide operations, greater reliance on long-term storage of foodstuffs may be required, with some resulting security and spoilage problems.²⁸

(3) Besides requiring transportation of foodstuffs into affected base areas, crop destruction operations have necessitated that food supplies accompany VC mobile units conducting operations in, or movements through, target areas. One apparently knowledgeable source reported that a defoliation operation in VC-controlled areas of Long An and Hau Nghia Provinces, which caused substantial damage to crops in the area, forced the VC to abandon a recently instituted, simplified logistic system. Under the simplified system, VC mobile units had relied on obtaining food in the villages through which they passed and, consequently, had been able to carry additional military equipment instead of food.²⁹

(4) The disruption of supply and logistics has had a significant impact on VC military operations and utilization of manpower. In some instances the VC have been forced to divert tactical units to conduct food procurement operations³⁰ and food transportation tasks.³¹ Manpower released from harvesting tasks by crop destruction cannot be fully utilized as transportation laborers. Many personnel assigned to VC production units, as well as civilian farmers exempted from the VC draft, are physically unfit for rigorous transportation tasks.³² Crop destruction operations have further disrupted manpower utilization by requiring increased food production efforts by VC tactical units. A VC directive dated 4 June 1965, predicted difficulties in food supplies, due in part to herbicide operations, and urged troops to increase farm production by obtaining fields to cultivate or by working as hired laborers.³³ Moreover, a Main Force VC captive reported that study sessions had been held in his unit in November 1965 to explain that the people's contributions to the VC had been lowered by chemical crop destruction, and therefore tactical troops must assume the additional duty of producing food.³⁴

e. Effect on Morale.

(1) Crop destruction operations adversely affect VC morale when such operations force a reduction in individual rations. Various instances of VC demoralization have been reported as directly attributable to food shortages caused by crop destruction.³⁵

(2) Crop destruction also affects morale in other ways.

Members of production units are apt to suffer extreme demoralization when all their efforts prove futile.³⁸ In one case, VC troops were demoralized when their civilian supporters turned against them because of hardships caused by crop destruction,³⁶ and troops' morale probably deteriorates because of the effects of herbicides on the families of some soldiers. On the other hand, civilian suffering and the feeling that the use of herbicides is "unfair" tend to increase VC hatred of the enemy and strengthen their motivation.³⁷ Especially among those who have not experienced herbicide operations, motivation undoubtedly is strengthened by VC propaganda concerning herbicides.³⁹ The misconceptions generated, however, by this same propaganda also promote demoralizing fear of physical harm among some troops.⁴⁰ This fear or anxiety is generally reduced by instruction to VC troops on the use of available devices, including gas masks, nylon sheets or bags, and wet handkerchiefs,⁴¹ which are claimed to prevent physical harm. VC troops who have experienced herbicide operations generally express little or no fear of them,⁴² although some continue to believe the spray has disabling effects.⁴³ In any event, fear produced by the spraying is not usually significant in comparison to that produced by bombings and artillery and mortar barrages⁴⁴ even though the concern over the hardships caused by the spraying may be greater.⁴⁵

2. Impact on Civilians in Target Areas.

a. Economic Impact.

(1) Civilians in target areas have suffered greatly from crop destruction operations, as evidenced by the flow of refugees⁴⁶ and by numerous first hand accounts.⁴⁷ Farmers suffer the most direct and probably the most serious losses, but everyone in the area is affected. Hired laborers lose employment since there is nothing to harvest, and merchants and traders suffer from the general depression in the area.

(2) While the loss to the VC is severe, in many instances, the civilians suffer more. In cases of total crop destruction in the area, the people's loss is apt to be more serious than that of the VC because of lack of civilian food reserves or alternative sources of supply. If the destruction is less than total, the impact on the people may be lessened by the fact that they can justifiably lower their contributions to the VC.⁴⁸ In other cases, however, the people suffer more when a crop is partially destroyed because the VC take a greater portion of the available food to satisfy their needs. As one source stated, "The people would die of hunger before the VC were harmed because they forced the people to contribute endlessly."⁴⁹ When a crop is partially destroyed in a VC-controlled area, VC policy probably is determined by balancing the VC need for food against their need for continued support from the people. Differences in degree of control also may account for some variations in how available food is divided.

(3) Civilians adversely affected by crop destruction

can expect little assistance from either the VC or the GVN. Although the GVN gives some assistance to those who flee to refugee centers, they pay no compensation for the intentional destruction of crops.⁵⁰ VC units in the target areas seldom can afford to contribute food to the people.⁵¹ In some cases, however, they may encourage those who have lost less or who have adequate food reserves to share with their less fortunate neighbors.⁵²

b. Civilian Dislocation.

(1) The economic impact of crop destruction operations has proved to be an effective inducement for many people to relocate to GVN-controlled areas. For example, psywar efforts had enjoyed only minimal success in inducing inhabitants to flee from VC-controlled areas in Binh Thuan Province, but shortly after a crop destruction operation about 250 persons left the target areas and entered GVN refugee centers.⁵³ Similarly, 300 refugees were resultant from crop destruction operations in War Zone "D" in late 1964.⁵⁴ Although the decision to move to an area of GVN control is seldom traceable to a single cause, crop destruction sometimes can tip the scales. According to one returnee:⁵⁵

"The truth is, if these people moved to the GVN-controlled areas, it was not only because their crops had been sprayed with chemicals; because since their areas had been hit by bombs and mortars, they had already had the intention to leave; and they would probably have done so, had it not been for the fact that they could not decide to part with their crops. Now that their crops were destroyed by chemicals, they no longer had any reason to be undecided"

Undoubtedly, many more civilians would flee to GVN control were it not for VC efforts to prevent such migration. The VC forbid such relocations⁵⁶ and have arrested people enroute to refugee centers after crop destruction operations.⁵⁷

(2) Some relocation also occurs within VC areas. For instance, hired laborers often migrate to find work in other fields. Moreover, some farmers, especially among the poorer class, which is typically more loyal to the VC, will move into other VC areas.⁵⁸ Montagnards in VC-controlled areas of the northern provinces frequently move to nearby areas still within VC control. Utilizing slash-and-burn farming methods, they seldom plant the same fields for more than two or three seasons. Consequently, they are not attached to their fields and generally move once spraying occurs. However, their loyalty to the VC, or at least their dislike of the GVN, usually induces them to remain in their highland homes rather than move into refugee centers.⁵⁹

(3) Strong traditional ties to the land and their native villages keep some people from moving, regardless of hardships or allegiances. According to some villagers:

"Wherever you are, you have to work to earn your living. Whether you stay here or move elsewhere, your life isn't assured. It is better to stay in one's village because this way one can die at home."⁶⁰

e. Psychological Impact.

(1) The morale of the civilian population in target areas is drastically lowered by destruction of their crops. Concern over anticipated deprivations and suffering is compounded by a sense of the futility of their efforts. As one avid VC described their situation:

"The farmers love their land, and the things they grow. All their lives, they did not own anything better than their own little plot of land, and the few trees. The spraying in one day killed the trees that had been planted 15 or 20 years before. You see how this affects their feelings and morale."⁶¹

From their sadness and futility, bitterness and hatred often spring. The direction which this bitterness and hatred take is by no means uniform, but is influenced to a considerable extent by misconceptions and confusion, and by preexisting loyalties or inclinations. Misconceptions concerning the effects of herbicides, apparently attributable to intensive VC propaganda, sometimes cause subsequent illnesses and misfortunes to be attributed to chemical spraying.⁶² The natural result is to enhance any belief of cruelty by the GVN and its American allies.

(2) Misconceptions or confusion concerning the purpose of crop destruction has an even greater tendency to cause bitterness to be directed toward the GVN and the Americans, with the latter normally being the primary target.⁶³ According to one former Main Force platoon leader:

"Almost none of the people understand the purpose of crop destruction by the GVN. They can only see that their crops are destroyed. Added to that, the VC pour propaganda into their ears. Therefore, a number of people joined the VC because they'd suffered from damage."⁶⁴

While this statement may be true in a particular locale, most people in the target areas do have at least a rudimentary understanding of the purpose of the spraying. Herbicide operations are in fact commonly directed at civilian crops, although the ultimate target is the VC. Therefore, it is understandable that many people fail to understand the subtleties of the purpose. Sometimes, civilians tend to associate justification of the spraying only with the physical presence of VC units in the target area

rather than with effective control by VC over the fruits of production. This misconception is clearly illustrated in the statement of a former VC platoon leader in War Zone "D":

"The people know the reason for these operations, but they didn't understand why the GVN carried out those operations in their areas. The Front members did not stay there. The GVN soldiers had been living there, but then they had to leave because they couldn't control the areas. The people remained behind to tend their land. Now GVN sprayed their crops and killed them off. The people were bewildered and believed the GVN was very cruel. . . . These spraying operations caused much resentment among the people. Those who had been for the GVN would begin to have second thoughts. People would be more lenient, but once their private interests were at stake then they would react strongly."⁶⁵

(3) As is to be expected, the strongest anti-GVN reaction to the crop destruction often comes from those who are already sympathetic to the VC cause.⁶⁶ The reaction of those who are uncommitted is more diverse. The extent to which the uncommitted are pushed into voluntary support of the VC by the destruction of their crops cannot be determined precisely. Although some additional voluntary support accrues to the VC,⁶⁷ the quantity is perhaps not as great as might be expected. A considerable number either sadly accept their loss as a result of a war in which they are unable to access blame,⁶⁸ or they diffuse their bitterness in all directions. The US and GVN are often blamed for their cruelty; the VC, for provoking the action. The following is a not uncommon illustration of the people's reaction:

"The villagers felt angry with the GVN and the Americans but they blamed the Front people, whose presence in the area had caused the destruction of their crops by chemical spraying. . . . They blamed everybody (VC, US, and GVN) and said: 'We have suffered too much already. All we ask is peace in order to earn our livings more easily.'⁶⁹

(4) Among some people, often those already disillusioned with the VC, bitterness and anger is vented primarily on the VC.⁷⁰ In a few cases, a strong reaction against the VC has been reported. After herbicide operations in the An Lao District in Binh Dinh Province, the people, faced with famine conditions which the VC could not solve, refused to assist the VC and resorted to some overt acts including the displaying of anti-VC slogans and physical violence.⁷¹ Similar anti-VC reaction reportedly occurred in Binh Dinh Province after herbicide operations in

April 1966. In some villages the people, because of concern for their own hardships, refused to dig trenches and tunnels for the VC. In another village the Montagnards, angry because the VC, contrary to their claims, had not protected the people from the spraying, "viciously assassinated" any VC cadre who entered the village alone.⁷² VC oppressive measures against would-be refugees undoubtedly contribute to some ill feeling toward the VC, for although the GVN and Americans directly caused their misery, the VC prevent its alleviation. Also, some psywar teams reportedly have successfully utilized the theme that the VC are unwilling or unable to protect the people and their crops.⁷³ While the flow of refugees from target areas does not necessarily indicate popular support for the GVN, it is an indication of loss of confidence in the VC. The ultimate psychological impact on those who flee to GVN control is largely dependent on the treatment they receive as refugees.

(5) In evaluating the significance of the reactions of the people in the target areas, it is important to remember that many of them actively support the VC. Others, while indifferent or even pro-GVN, live under VC control and are required to render assistance to the VC. Thus, viewed from the short-range GVN goal of reducing effective public support for the VC, the impact of the crop destruction program probably favors the GVN. Any GVN gains or losses in effective support are not significant. VC losses of effective support due to the flow of refugees and the severe demoralization of those remaining, however, probably exceed VC gains from additional voluntary support. Viewed from the long range goal of gaining popular support of the GVN, without regard for VC support, the balance in the target areas appears adverse to the GVN. The resentment that is produced or intensified by the US-GVN actions probably outweighs the support of those refugees who are satisfied with their treatment in GVN-controlled areas.

3. Impact on Civilians in Non-Target Areas.

a. Since crop destruction operations contribute to VC food supply and logistical problems, they are a factor in increasing the demands which the VC make on the people in other areas which they control or influence. These demands for larger food contributions, more civilian laborers for transportation, and increased sales of foodstuffs to the VC rather than on the most favorable markets increase the hardships of the people and tend to foster resentment toward the VC. On the other hand, effective VC propaganda concerning herbicide operations promotes fear and hatred of the US and GVN. These factors probably cancel one another, but the precise effect cannot be measured.

b. In GVN-controlled areas, especially those near target areas, security may be impaired by VC efforts to obtain alternative sources of food. Any resulting economic or psychological impact is largely determined by the degree of the security that GVN and Allied forces are able to provide. In addition, the VC attempt to emphasize the role of crop destruction operations

in causing food shortages and higher prices in GVN areas.⁷⁴ Although there is some danger from VC propaganda of this nature, no significant adverse reaction has been noted in GVN areas.

C. Defoliation Operations.

1. General. When properly applied, the defoliants presently used effectively reduce vegetation for nine to twelve months and expose the target area to greatly improved ground and air observation. Herbicides have been utilized in defoliation missions primarily for defensive purposes; the bulk of defoliation operations have been carried out along friendly lines of communication, with other operations being conducted to clear around friendly bases and installations. Defoliation also has been used on a small scale to disrupt movement along VC routes. Defoliation operations assumed, however, a more offensive character with saturation defoliation of VC havens during 1965 and 1966, in particular, over Boi Lai Forest, Chu Phong Mountain, and in the coastal mangrove areas of Go Cong, Kien Hoa, and Bao Lieu Provinces. When used for clearing vegetation in VC havens, defoliation operations take on some of the aspects of crop destruction operations, because a contingent effect of such operations is the destruction of crops which exist in the target areas. Normally these areas do not contain, however, a significant number of civilians or cultivated fields.

2. Impact on VC According to Type of Defoliation Operation.

a. Defoliation of Friendly Lines of Communication.

(1) Defoliation, by denying concealment to the VC adjacent to highways, rivers, and canals, is believed to restrict VC activities in those areas, thereby protecting the movement of Allied and civilian personnel and supplies. The VC consider it important for their purposes that lines of communication not be cleared. They commonly prohibit the cutting of any trees or shrubs adjacent to highways and impose rather severe penalties on violators.⁷⁵ Also, a former VC underwater demolitions specialist has testified that the clearing of vegetation adjacent to rivers is an effective defensive measure that prevents the disruption of river traffic.⁷⁶

(2) The limited available evidence of actual effects generally supports these assumptions. Overall statistical data are not available at present, but a limited survey of three areas disclosed that the VC incident rate was significantly reduced in the months following defoliation, while the volume of friendly traffic continued or increased.⁷⁷ In addition, defoliation along the Vei Co River caused the VC to evacuate their sheltered positions along the banks,⁷⁸ and an earlier operation along the Thoi River defoliated a regularly used ambush site, causing at least three subsequent VC ambush attempts to be unsuccessful.⁷⁹ Although partial defoliation along lines of communication probably displaces rather than eliminates VC activity, the specific objectives of such defoliation are usually achieved.

b. Defoliation Around Friendly Installations. Defoliation around friendly bases and installations aids in protecting friendly personnel, equipment and supplies against enemy attack, infiltration, and pilferage. Support for this belief must be based on reason rather than evidence. The number of variables involved makes comparison of incident rates for defoliated and nondefoliated installations unrewarding. Nevertheless, tactical principles emphasize the value to the defender of good observation and fields of fire, and defoliation effectively provides these conditions. While such defoliation does not provide absolute protection, as evidenced by attacks on Special Forces camps, the VC undoubtedly are forced to pay a higher price for any penetration of the installation.

c. Defoliation of Enemy Routes of Movement. Movement of VC troops and supplies is impeded when routes are exposed by defoliation. Some operations have been conducted for this purpose and other herbicide operations may have this secondary effect. Accounts of the effect on movement often vary; this may be due to the size of the particular defoliated area or the stage of defoliation. As a general rule, however, because of fear of aerial detection, enemy units have sought to avoid movement through defoliated areas. Sometimes only minor inconveniences is caused since units are warned in advance by liaison agents or guides.⁸⁰ Other units have been forced to halt their movement until nightfall before proceeding through a defoliated area.⁸¹ In some cases, defoliated areas have been crossed during daylight by utilizing camouflage⁸² or by the time consuming process of proceeding individually rather than in a group.⁸³ Some such areas, apparently small ones, have been crossed after the unit was assured that no aircraft were nearby.⁸⁴ Although enemy movement is not prohibited, these reactions affirm the general value of defoliation in hindering, and perhaps canalizing, VC movement.

d. Defoliation of Enemy Base Areas.

(1) Defoliation of VC base areas or troop locations significantly increases the susceptibility of installations, storage areas, and personnel to aerial attack and observation. Faced with detection in the sprayed area, the VC normally abandon their bases;⁸⁵ installations and supplies often must be left behind. Outside the base areas, there is less security and sometimes the VC must continue to move or fight to stay in one place.⁸⁶ Hardships are increased for the individual soldier, and leaders have reportedly become infuriated.⁸⁷ In addition, as with all herbicide operations, fear produced by the supposed toxic effect of the chemicals may have some adverse effect on morale.

(2) The availability of adequate alternative locations sometimes places limitations on the benefits derived by Allied forces from defoliation of bases or enemy troop locations. VC in the spacious vegetated areas of the highlands often express little concern about the possibility of defoliation. Although some inconvenience will occur, they feel they can easily move to another area in the immense jungle.⁸⁸ In any area,

defoliation of bases is most effective when conducted in conjunction with other military operations.⁸⁹

3. Impact on Civilians.

a. Economic Impact. With respect to civilian residents of the area, the economic impact of saturation defoliation of VC havens is similar to that of crop destruction operations. The economic impact on civilians of other types defoliation operations is not so substantial, but frequently the spray drifts and causes damage to civilian crops. In these instances, damage often is not total since there is generally less saturation than in cases of intentional destruction.⁹⁰ Moreover, outside assistance is more readily available to those who suffer property damage. Unaffected neighboring farmers may give some relief, and compensation is sometimes provided by the GVN. General procedures for compensation of unintentional damage due to defoliation have been established by the GVN; however, too often the compensation is withheld or is inadequate.⁹¹ In some instances the VC have given assistance or have encouraged others to do so.⁹² Those affected most seriously by defoliation may move to refugee centers if no other assistance is available.

b. Psychological Impact.

(1) The nature and significance of the impact of defoliation of VC havens on the sentiment of affected civilians is substantially similar to that produced by crop destruction operations. Basically the same influencing factors are present in both: the severity and apparent intentional nature of the destruction and the substantial VC control or influence over the injured persons.

(2) Several different factors influence public reaction to destruction caused by defoliation of lines of communication and around friendly installations and by the unintentional drift of the spray from any type of herbicide operations. First, the people affected are not necessarily under VC control or influence. Absence of effective VC control not only influences their reaction, it also causes, or should cause, greater Allied concern over the possibility of adverse reaction. Second, and probably more important, GVN compensation, or the lack of it, greatly influences public reaction. Although there is no uniformity, the majority of the affected persons apparently understand the purpose of the operations and realize that the destruction of their crops was unintentional. While there still is resulting resentment toward the GVN and US and some support for the VC,⁹³ there is a tendency to grudgingly attribute the loss to the misfortunes of war.⁹⁴ Immediately after defoliation operations the VC are noticeably active in their attempts to stir up public resentment and gain the support of those who are uncommitted or mildly loyal to the GVN. Public demonstrations in demand of compensation are prevalent.⁹⁵ While these demonstrations are seldom spontaneous, they do reflect public resentment. A probably accurate analysis was made by a VC returnee, who stated:

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"I don't think the people would ever stage a demonstration on their own. They had to be urged and organized by the cadres. But in order to get the people to take part in a demonstration, there had to be a good reason. In this case, the people were full of resentment and hatred. So, although it was organized by the cadres, the main reason still was the resentment of the people."⁹⁶

(3) When some compensation is granted by the GVN, resentment is generally eliminated.⁹⁷ In most instances, however, compensation procedures have proven inadequate and GVN influence has been unnecessarily diminished.⁹⁸

III. CONCLUSIONS.

A. Presently, the advantages accruing to the Allies from the crop destruction and defoliation programs substantially outweigh the disadvantages. Moreover, this favorable balance should continue even with a considerable acceleration of these programs, at least if certain considerations are resolved.

B. A more extensive defoliation program should produce no significant adverse effects if the compensation program is improved. It must give fair reimbursement for damage to civilian crops, while insuring that no sizeable portion of the compensation reaches the VC. Past psywar efforts apparently have contributed to a basic understanding of the purpose of defoliation, but these efforts should be accelerated along with the defoliation program.

C. Of the two aspects of the herbicide program, crop destruction appears to have the greater potential, but acceleration of that program will probably create greater, though not insurmountable, problems. Past crop destruction operations have been conducted on a somewhat limited scale in relation to the resources available to the VC. While these operations have effectively caused logistical difficulties, diversions of manpower, and at least temporary food shortages in some areas, a more extensive program should produce far more impressive results. If the program is accelerated, however, greater efforts will be required to minimize the potential for increased adverse effects. First, greater efforts may be required to protect food production areas not under VC control, since the threat to those areas will increase as VC resources diminish. Second, the anticipated increased flow of refugees from target areas will probably require expansion of the refugee program. Third, greater efforts should be made to insure that civilians in the target areas understand the purpose of the crop destruction program and are aware of the refugee programs. Finally, the possibility of increased effectiveness of VC propaganda, particularly in the international arena, should be anticipated. Policy should be defined and disseminated so that news releases and responses to foreign inquires accurately portray the nature and scope of operations and are neither contradictory nor defensive in tone.

FOOTNOTES

1. MACCOG 13. This figure is derived by using the rough formula: Number of hectares sprayed X 9 = number of people who could be fed for a year. The formula is based on the assumptions that one hectare will yield three tons of food and that, based on an average Vietnamese diet of less than two pounds of food per man per day, one ton of food will feed three men for one year. The assumption of a three ton yield per hectare is very imprecise. The actual yields of the sprayed areas vary due to differences in location and types of crops. No accurate breakdown is available on the amount or types of crops in each target area. Since most of the destroyed crops were manioc and sweet potatoes, whose yield is normally much higher than three tons per hectare, the formula should be conservative enough to compensate for a loss of 100 per cent destruction of crops in the target areas. Finally, it should be noted that the formula only takes into account the quantity of food consumed, not the types of food. Thus, the figure of 245,000 can be considered only as a very rough approximation, but it does give some perspective to the discussion.
2. For a discussion of the various forms of VC taxes and quasi-taxes, see R&A/CICV Study #68-66 "VC Taxation".
3. Rand Interviews H-1, Q 15 and H-2, Q 22.
4. In one instance VC supply personnel were able to purchase only two to four tons of a desired twenty tons of rice because the people were afraid that chemicals would be sprayed and, consequently, they would be short of rice. VC Document, USMACV DEC Log No 11-1284-65.
5. See Section II, B, 2, b -- "Civilian Dislocation".
6. Rand Interview H-8, Q 12. This conclusion is supported also by the fact that the VC normally attempt to prevent the flow of refugees. See Section II, B, 2, b below.
7. Annual production of rice, corn, sweet potatoes, vegetables, and fruit is believed to be roughly six million tons. USAID, "Vietnam Agriculture," Feb 66. An estimated eighty thousand tons of crops were destroyed in 1965. See footnote 1, above, and Appendix "A".
8. Seven VC defectors who were literally starving attested to the effectiveness of crop destruction operations in southern War Zone D in late 1964. They told GVN officials that only Main Force units in that area were receiving even barely adequate rations. Memorandum, Mr. Marsh to Mr. Manfull, Subject: Provincial Notes -- Phuoc Thanh, 13 Jan 65.

9. Responses to SICR U-UPE-UCO57, Oct 64; Report, Adv Team Phuoc Binh Thanh Special Zone to Sr Adv III CTZ, Subject: Evaluation of Crop Destruction Operations, 19 May 65.
10. Special Information Report, IVCC No 0471B, USMACV DEC Log No 1-78-65.
11. For example, the VC made such a major effort from Oct 64 to Jan 65 in Binh Thuan Province after a crop destruction operation. Information Report #1120/64; 25 Oct 64; Report, Adv Team Binh Thuan Sector to Sr Adv II CTZ, Subject: Crop Destruction 2R, 12 May 65. Moreover, the severity of the food shortages resulting from crop destruction operations in Phuoc Thanh and Phuoc Long Provinces was indicated by subsequent VC efforts to obtain food during tactical operations, such as at Song Be on 11 May 65. Report, III CTZ Adv Gp to COMUSMACV, Attn: J3 Chemical, Subject: Evaluation of crop Destruction Operations, 28 May 65.
12. Message, 220400Z May 65, Sr Adv II CTZ to COMUSMACV.
13. Memorandum, Philip C. Habib to Ambassador Porter, Subject: Information from Debriefing of Sgts Smith and McClure, 14 Dec 65.
14. USMACV DEC Log No 03-116-66.
15. USMACV DEC Log No 11-1155-65.
16. USMACV DEC Log No 3-1425-66; USMACV DEC Log No 02-1121-66.
17. USMACV DEC Log No 01-1596-65.
18. USMACV DEC Log No 02-1266-66.
19. As of mid-March 1966, C-123 aircraft on herbicide missions had suffered 904 hits from groundfire since the beginning of operations, with 105 of the hits occurring in 1966. However, none of the aircraft conducting spraying had been downed. MACCOC 13; information reported in Embtel 3435, 21 Mar 66.
20. Memorandum, Philip C. Habib to Ambassador Porter, Subject: Information from Debriefing of Sgts Smith and McClure, 14 Dec 65; Rand Interviews H-16, Q 12; AG-289, Q 288. See also, Rand Interview AG-327, Q 186.
21. Rand Interviews AG-345, Q 268; H-10, Q 57; H-16, Q 17; H-21, Q 29.
22. Minutes of Meeting of CA-3 (VC committee), 25-26 Apr 65, USMACV DEC Log No 11-1155-65.
23. Interrogation Report, MIC #0326, USMACV DEC Log No 12-0067-65.
24. Rand Interviews H-21, Q 27; H-24, Q 44.

25. Memorandum, Mr. Marsh to Mr. Manfull, Subject: Provincial Notes -- Phuoc Thanh, 13 Jan 65.
26. VC Food Ration Directive, 4 Jun 65, USMACV DEC Log No 02-1421-66; Memorandum, Philip C. Habib to Ambassador Porter, Subject: Information on Debriefing of Sgts Smith and McClure, 14 Dec 65. See also, USMACV DEC Log No 3-1426-66.
27. See Rand Interview AG-274, Q 22; USMACV DEC Log No 12-1095-65. In one area, all VC activities had to be suspended to organize people for transportation of rice. USMACV DEC Log No 11-1284-65. The enormity of the task is evident when it is realized that the normal load for a VC porter is only 20 to 25 kilos, or about 45 to 55 pounds. Rep., Rand Interview H-19, Q 13; Special Information Report, IVCC Control No 0471B, USMACV DEC Log No 1-78-65.
28. A VC Military Region V Rear Service directive concerning quartermaster tasks for 1966 stated that the increasing tempo of the war and the chemical destruction of crops required flexible plans for procurement and storage capable of supporting tactical plans. The directive also pointed out serious transportation problems. USMACV DEC Log No 04-1212-66.
29. Rand Interview H-18, Q 18.
30. See references cited in footnote 11. Crop destruction apparently has contributed to expected future VC efforts to obtain food by launching military operations. See, for example, III Corps Perintrep No 12, 20001 - 262400 Mar 66, and COMUSMACV Message 040427Z Apr 66, Subject: Control of Rice and Salt (S).
31. Report, III CTZ Adv Team to COMUSMACV, Attn: J3 Chemical, Subject: Evaluation of Crop Destruction Operations, 28 May 65.
32. Interrogation Reports, MIC #0377, USMACV DEC Log No 12-0075-65 and MIC #0747, USMACV DEC Log No 12-0063-65; Rand Interview H-10, Q 19.
33. USMACV DEC Log No 02-1421-66.
34. Rand Interview H-19, Q 30.
35. Report, Adv Team Binh Dinh Sector to Sr Adv 22d Inf Div, Subject: Crop Destruction 2R, 14 May 65; Report, III CTZ Adv Gp to COMUSMACV, Attn: J3 Chemical, Subject: Evaluation of Crop Destruction Operations, 28 May 65; Rand Interview H-10, Qs 60-61.
36. E.g., Rand Interview AG-289, Q 370.
37. Rand Interview H-16, Q 21.

38. Rand Interviews H-19, Q 15; AG-263, Q 234; AG-176, Q 102.
39. See Appendix "B".
40. Rand Interviews AG-214, Q 97; AG-63, Q 105.
41. Rand Interviews AG-345, Q 234; AG-327, Q 181; AG-289, Q 363.
42. Rand Interviews AG-289, Q 369; H-7, Q 23.
43. Rand Interview AG-211, Q 97. Subject said the VC were not afraid of chemicals because they had devised methods to counter them.
44. Rand Interview H-7, Q 23.
45. Rand Interviews H-10, Qs 55, 73; H-11, Q 59.
46. See Section II, B, 2, b -- "Civilian Dislocation".
47. Rand Interviews AG-215, Q 79; H-19, Qs 46, 50; H-21, Q 36. See also, Report, III CTZ Adv Gp to COMUSMACV, Attn: J3 Chemical Officer, Subject: Crop Destruction Operations, Binh Thuan Province, 9 Sep 64. A former VC village guerrilla in Binh Thuan Province reported that after a crop destruction operation "most of the villagers lived in distress and some even died of starvation and want." Rand Interview H-16, Q 23. As is the case in some VC units, the economic impact on civilians is exaggerated in some cases by misconceptions concerning the edibility of food sprayed by herbicides. E.g., Rand Interview H-17, Q 23.
48. At least in theory, some reduction in VC taxes is granted in cases of crop damage. 1965 Tax Collection Report (COSVN), USMACV DEC Log No O4-1183-66. See also, Rand Interview AG-289, Qs 375-76.
49. Rand Interview AG-86, Q 97.
50. Some of the people in the target areas, though civilians, undoubtedly are active VC supporters and compensation to these people would be difficult to justify. Others may be neutral or even oppose the VC, but a portion of their crop goes to the VC and apparently causes the entire crop to be considered a legitimate target of war. Moreover, if compensation were granted to a person still in a VC-controlled area, at least a portion of the sum undoubtedly would go to the VC. Compensation safely could be paid, however, to refugees as an added inducement to leave VC-controlled areas.
51. One subject burst out laughing when asked if the VC helped the victims of crop destruction -- then replied that the VC did not have enough to feed themselves, let alone give to others. Rand Interview H-10, Q 71. See also, Rand Interview AG-289, Q 374. Even the loyal Montagnards who

- were severely hurt by crop destruction operations in Thua Thien Province received no assistance from the VC. Rand Interviews H-1, 2, 3, and 4.
52. Rand Interview H-17, Q 38. Even this limited assistance probably will depend on the seriousness of the VC food needs. When crops are destroyed in areas where food is more abundant, usually in defoliation operations, the VC sometimes render greater assistance. See Section II,C,3,a,below.
53. Message 180745 Sep 64, Sr Adv Binh Lam Special Zone to Sr Adv II CTZ; Report, Adv Team Binh Thuan Sector to Sr Adv II CTZ, Subject: Crop Destruction 2R, 12 May 65.
54. Report, III CTZ Adv Gp to COMUSMACV, Attn: J3 Chemical, Subject: Evaluation of Crop Destruction Operations, 28 May 65. Moreover, captured VC documents attribute a substantial flow of refugees in Tay Ninh Province to crop destruction operations in 1965. USMACV DEC Log No 03-2166-55. Also, a defoliation-crop destruction operation along the Vam Co River reportedly caused 40 per cent of the people in one village to move to GVN-controlled areas. Rand Interview H-18, Q 15.
55. Rand Interview H-7, Q 13.
56. Rand Interviews AG-289, Q 371; H-17, Q 33.
57. Report, Adv Team Binh Dinh Sector to Sr Adv 22d Inf Div, Subject: Results of Herbicide Operations, 23 Apr 65. A particularly strong effort apparently was made to stem the flow of refugees after crop destruction operations in parts of Binh Dinh Province. Message 220400Z May 65, Sr Adv II CTZ to COMUSMACV; Report, II CTZ Adv Gp to COMUSMACV, Attn: J3 Chemical Operations, Subject: Evaluation of 2R Missions, 25 May 65. Nevertheless, 360 refugees reportedly escaped from four target areas. Report, Adv Team Binh Dinh Sector to Sr Adv 22d Inf Div, 14 May 65.
58. Rand Interview H-18, Q 15. This source gave the following account concerning refugees from a defoliation operation in Long An and Hau Nghia Provinces that caused substantial crop destruction: "After the spraying about forty percent of the people moved to the GVN-controlled areas . . . most of them belonged to the higher classes in the village, that is, rich or middle class farmers. At first they left their grown-up sons behind in the village but when they found that the GVN didn't draft refugees, they sent for their sons to come out. A small number of them belonged to the very poor farmers' class. They left the village after the richer classes; and they left only after being assured that the GVN had assisted those who went before them. About thirty percent of the people moved deeper into the liberated areas. . . . The remaining thirty percent stayed on in the village. They just waited until the time came to replant their fields. Those

who remained behind or who moved to the liberated areas were all poor or very poor farmers. The Front always praised them as the basic classes of the Revolution. That's why they were more influenced by the Front than the middle class and rich farmers ever were."

59. Rand Interviews H-1, 2, 3, and 4.
60. Rand Interview H-21, Q 37.
61. Rand Interview G-24, Q 59.
62. Rand Interviews G-3, Q 71; H-23, Qs 40-41.
63. "The people said the Americans were responsible because they themselves did the spraying They also said that the Nationalists probably weren't as cruel as the Americans; the Nationalists wouldn't want to kill all the Vietnamese. Only the Americans wanted to starve the Vietnamese because they were the invaders." Rand Interview H-21, Q 24. See also, Rand Interview H-19, Qs 38, 52. On the other hand, Montagnards in the northern provinces tend to direct their hatred toward the GVN and "Mr Diem" rather than the Americans. Rand Interviews H-1, Q 16; H-2, Q 23; H-4, Q 20.
64. Rand Interview H-10, Q 74. The source continued: "In my opinion, to get the maximum result out of the spraying, the GVN should warn the people beforehand and explain to them why, call on them to move to the GVN-controlled area, and assure them that they'll have plenty of jobs in the GVN areas. When the people understand the purpose of crop destruction, and if they know that their living is assured in the GVN-controlled areas, they won't be resentful towards the GVN. Thus, the chemicals would become a perfect weapon."
65. Rand Interview AG-252, Q 268. See also, Rand Interviews G-7, Q 118; AG-345, Q 260.
66. Rand Interviews AG-345, Q 272; H-1, Qs 17-18; H-2, Q 25; H-19, Q 38.
67. Rand Interviews G-24, Q 59; H-10, 74.
68. Rand Interview AG-297, Q 154.
69. Rand Interview H-16, Q 22. See also, Rand Interviews H-17, Q 31; AG-289, Qs 366-67.
70. "They blamed the VC most because they had lived with the GVN before and knew how peaceful it used to be. When they found out that the VC lied, they became resentful." Rand Interview H-12, Q 55. See also, Rand Interview AG-345, Q 272.

71. Message 220400Z May 65, Sr Adv II CTZ to COMUSMACV.
72. Information Report #2476/66, 30 Apr 66.
73. Report, III CTZ Adv Gp to COMUSMACV, ATTN: J3 Chemical Officer, Subject: Crop Destruction Operations, Binh Thuan Province, 9 Sep 64.
74. VC Directive, USMACV DEC Log No 02-1110-66.
75. Order #102-TL, dated 23 Nov 65, issued by Bien Hoa Province Military Affairs Committee (VC), USMACV DEC Log No 02-1167-66; Information Report #1813/66, 30 Mar 66.
76. Interrogation Report, MIC #092LP, USMACV DEC Log No 2-0028-66.
77. In one case no subsequent ambushes or incidents were reported along the defoliated portion of the highway. In another case, there were 11 incidents in the 4 month period prior to defoliation and only 3 incidents in the subsequent 6 month period. In the third case, incidents were reduced from 6 in 4 months to 2 in 6 months. MACCOC 13 Informal Evaluation of Herbicide Program.
78. VC Memorandum, USMACV DEC Log No 02-1172-66.
79. Rand Interview AG-205, Qs 97, 99b, 99k.
80. Rand Interview G-3, Q 69.
81. Rand Interview DT-16(I), Q 13; AG-297, Q 156.
82. Rand Interview AG-297, Q 156.
83. Rand Interview H-4, Q 12.
84. Rand Interview AG-241, Q 78.
85. Information Report #1199/65; Rand Interviews AG-325, Q 124, and AG-289, Q 281; MACCOC 13 Informal Evaluation of Herbicide Operations.
86. VC Memorandum, USMACV DEC Log No 02-1172-66.
87. Rand Interview AG-325, Q 124.
88. Rand Interview H-1, Q 7; H-4, Q 12.
89. For example, 52 VC reportedly were killed or captured while fleeing a defoliated area in Co Cong Province. MACCOC 13 Informal Evaluation of Herbicide Operations.

90. Rand Interview H-24, Q 25.
91. Provincial Report, David F. Lamberton to Mr. Habib, "Security and Revolutionary Development in Kien Hoa," 15 Mar 66; JUSPAO Field Representative Report for Go Cong and Kien Hoa Provinces, 15 Dec 65 - 20 Jan 66.
92. In one instance the VC collected money from troops and people in other areas to give to the people whose crops had been destroyed. Rand Interview H-11, Q 57.
93. For example, one Main Force platoon leader reported that some of the men in his unit said they joined the VC because their families' crops had been destroyed by defoliation and that other people in the area had become more friendly with the VC after the spraying. Rand Interview H-10, Q57.
94. Rand Interviews AG-130, Q 150; AG-205, Q 98.
95. Provincial Report, David F. Lamberton to Mr Habib, "Security and Revolutionary Development in Kien Hoa," 15 March 66; JUSPAO Field Representative Report for Go Cong and Kien Hoa Provinces, 15 Dec 65 - 20 Jan 66; Rand Interview AG-196, Q 165; SIG Report No 42/65; Information Report #239/65.
96. Rand Interview H-11, Q 56.
97. Rand Interview H-6, Q 28.
98. Responsibility for civilian claims of damage from defoliation operations is being transferred from civilian channels to MILCAP (Military Civic Action Program - RVNAF). Perhaps the much needed improvement will follow this transfer.

ANNEX A: STATISTICS ON HERBICIDE OPERATIONS. *

1. As of 12 March 1966, total crop area destroyed by herbicides since the inception of the program was 39,794 hectares, or slightly more than 98,000 acres using a conversion factor of 2.47 acres per hectare. Total by years:

1962-63	379 hectares
1964	5,690 hectares
1965	27,300 hectares
1966 (thru 12 Mar)	6,425 hectares

2. As of 28 February 1966, about 128,070 hectares, slightly less than 316,000 acres, had been defoliated by C-123 aircraft since the inception of the program. No figures are available for small scale defoliation conducted by helicopters or ground spray. Totals by year:

1962	2,000 hectares
1963	8,730 hectares
1964	25,700 hectares
1965	64,930 hectares
1966 (thru 28 Feb)	26,740 hectares

3. Saturation defoliation of VC havens in 1965 and 1966 accounts for some of the increase over preceding years. Another factor accounting for part of the increase is that since August 1965, on request of US and RVNAF field commanders, the swath sprayed on each side of lines of communication has been increased from 100-200 meters to 500 meters -- 1000 meters in the case of the Saigon River ship channel.

4. Since crop destruction and defoliation operations have been conducted in some target areas more than once, the above figures do not reflect the total land area that has been sprayed.

* Source of Information: PACCO13

ANNEX B: ANTI-HERBICIDE PROPAGANDA

1. Both internationally and within Vietnam, herbicide operations are the subject of a major enemy propaganda campaign, characterized by exaggeration of the extent of the operations and distortion of their effects. The propaganda makes little or no distinction between crop destruction and defoliation aspects of the herbicide program, and a single propaganda message often denounces both the employment of herbicides and tear gas. Some propaganda distinguishes between the chemicals by using the terms "toxic chemicals" for herbicides and "tear gas" for tear gas; but this terminology is not constant.

2. The more sophisticated propaganda originating in Hanoi seeks to influence world opinion and, along with Liberation Radio broadcasts, sets the pattern for localized propaganda efforts. In recent months the use of herbicides has been the subject of increasing protests, directed largely at the employment of herbicides on a larger scale but employing the same well-used themes. Accusing the "US Imperialists" of conducting an "extermination-war policy" or a policy of "kill all, burn all, destroy all," these sources maintain that 320,000 hectares of crops were destroyed in 1963, 500,000 hectares in 1964, and 700,000 hectares in 1965.¹

3. Charging that the "US aggressors have lost all human character" and "are behaving like a pack of deranged dogs" or "like a pack of blood-thirsty devils who outdo even the Hitlerite fascists in ferocity"², the propagandists generally dwell on the alleged adverse effects of herbicides on humans and animals. According to Communist sources:

"In the past few years, thousands of persons were killed and hundreds of thousands of others affected by US toxic chemicals. Recent preliminary investigations by the NLFV Medical Committee and the Liberation Red Cross showed that in some localities the number of persons killed by US chemical poisons had increased 30 percent. Fifty-six percent of the local population got intestinal diseases by eating poisoned food, and 75 percent of them became consumptive. More barbarous still, US poison substances have killed fetuses and seriously affected milk secretion of many mothers and rendered them unable to feed their babies. . . Moreover from 50 to 60 percent of the draught animals lost their vigor and stopped breeding, while the poultry were completely killed".³

4. The effectiveness of their claims of injury to humans is heightened by the mixing of fact and fiction and by vivid, detailed descriptions. After a recent area defoliation operation in Kien Hoa, one report stated:

¹Liberation Radio in Vietnamese to South Vietnam, 14 Mar 66, FBIS, Daily Report: Far East No 56, 23 Mar 66, Hanoi VNA International Service in

"So far, nearly 500,000 people, the bulk of the province's population, have been affected more or less seriously. 46,000 of them, mostly women, children, and old folks, are in a grave state, getting itch all over their bodies, nausea and swellings. The body of Mrs Khai of Hoa Than Hamlet Two, Luong Hoa village, Giong Tron district, was swollen to the point that she could hardly walk. Mr Tai's children, two boys and one girl, died after eating poisoned fruit. Mrs Mui's 3-year-old boy, of Long My village, same district, who was playing in his mother's arms, suddenly died after violent throes. . . . In addition, hundreds of people seriously affected were sent to hospitals. Toxic chemicals exerted also a damaging effect on domestic animals. Hundreds of head of cattle were killed by eating poisoned grass. Thousands of others were affected. Tens of thousands of poultry, pigs and dogs died also."⁴

5. In addition to the general purposes of this propaganda, it has been used recently in more specific attempts to belittle the US "peace offensive" and the Honolulu Conference declarations concerning efforts to improve the lot of the Vietnamese people.

6. VC propagandists in South Vietnam follow the guidelines set forth by Hanoi and Liberation Radio, although local conditions sometimes invite for require some variations of theme. The people are generally told that the US and GVN are losing the war, and in desperation, are trying to destroy the economy of the people, all of whom support the VC. Moreover, herbicide operations are often described as part of the American effort to destroy or impoverish the people so they can take over the country, or as an attempt to impoverish the people and force them into GVN-controlled areas where they can be rigorously controlled, taxed, and exploited by the GVN. In the central highlands, the program is sometimes described as being directed particularly at the Montagnards.

English, 23 Mar 66 (quoting editorial of Hanoi Daily newspaper NHAN DAN), FBIS, Daily Report: Far East No. 56, 23 Mar 66. In an earlier article, NHAN DAN cited "incomplete reports" that 370,000 hectares of land had been devastated in 1965 (FBIS, Daily Report: Far East No. 52, 17 Mar 66), but later accepted the subsequent VC totals broadcast over Liberation Radio. Reference to Annex A will show that these figures exceed the total for both crop destruction and defoliation operations.

2. Hanoi VNA International Service in English, 25 Feb 66 (quoting a NHAN DAN Editorial), FBIS, Daily Report: Far East No. 38, 25 Feb 66.

3. Hanoi VNA International Service in English, 16 Mar 66 (Statement of NPLSV Central Committee), FBIS, Daily Report: Far East No 52, 17 Mar 66; Liberation Radio in Vietnamese to South Vietnam, 14 Mar 66, FBIS, Daily Report: Far East No 56, 23 Mar 66.

7. Distortion of the effects of herbicides on humans and animals is found in local propaganda, although there is less uniformity on this point than in propaganda from Hanoi and Liberation Radio. Among people who have not experienced herbicide operations, Communist propagandists usually claim that the chemicals cause illness or death, especially among children and older people. Herbicides have all-gedly caused, among other maladies, malaria, cholera, blindness, skin rashes, swelling of the body, and the vomiting of blood. Apparently as a part of their propaganda efforts, the VC often instruct the people in means to protect themselves from chemical spraying and in methods of treatment should they be exposed to the spray. Apparently as an attempt to convince people that the chemicals used in herbicide operations are toxic, the VC in some areas reportedly are establishing special civilian medical sections where people will be shown how to protect themselves from "poisonous chemicals" and where those so affected can be treated. In some cases, however, the people are merely told that herbicides are sprayed to destroy crops and cause starvation. In either case, the people are normally told that sprayed food and water cannot be consumed. Variations in the propaganda are possibly accounted for by the differing degree of receptiveness of the audiences, their knowledge of herbicides from other sources, or the fact that some of the utterances of VC cadre are not coordinated with propaganda personnel.

8. In the target areas the VC normally concentrate on distorting the purpose of herbicide operations and on arousing public resentment toward the GVN and Americans. In some sprayed areas the VC have suffered embarrassment when the people learned that their propaganda was false. The cleverness and flexibility of the VC propagandist is illustrated, however, in the report of one such instance:

"The Group's cadre lost face because the chemicals didn't turn out to be as deadly as we had told the people. So we sat down to study a way to protect the prestige of the Front. We explained to the people that the Americans used several kinds of chemicals. One kind could both kill the people and destroy the crops. Another less harmful kind would destroy the crops only. The Americans were suffering heavy defeats. They sprayed chemicals to destroy the crops in order to push people into the New Life Hamlets which were to serve as their last resort. If there were negotiations, the Americans would claim that they had for their support several important populated areas. Thus they would have an advantage at the conference table. Therefore,

4Vietnam Courier, Special Issue, 31 Jan 66 (Statement of NFLSV Committee of Ben Tre Province (VC).

they had only sprayed the least harmful variety and avoided killing the people because if they killed the people, they wouldn't have anyone left to gather in one place to serve their purpose.... I found that our strategy pretty well took care of the problems caused by the earlier exaggerated propaganda."⁵

9. The extent of property damage is also often exaggerated by the VC. Unrelated crop failures in target areas and even crop failures in other areas, are sometimes attributed to herbicides. Even damage to crops caused by insects has been blamed on herbicides, with the VC claiming that somehow the insects were spawned by chemical spray.⁶ There also have been reports that the VC themselves have poisoned water sources and destroyed trees and garden crops in order to blame the damage on defoliation.⁷ Public demonstrations are a common, and often effective, tactic of the VC for inflaming public resentment of real or imagined damage caused by herbicides — especially by defoliation operations. The people are often incited to protest to the district chief and demand compensation or cessation of herbicide operations. These demonstrations are sometimes dramatized by the carrying of damaged plants or by the including, in the front ranks of the protesters, persons allegedly physically injured by the chemicals.⁸

⁵Hand Interview H-18, Qs 9-10

⁶E.g., JUSPAO Field Representative Report for Go Cong and Kien Hoa Provinces, 15 Dec 65-20 Jan 66

⁸IC Report No 42/65, 15 Mar 65; Information Report No 239/65, 27 Jan 65; JUSPAO Field Representative Report for Go Cong and Kien Hoa Provinces, 15 Dec 65 -- 20 Jan 66.

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