

Tab A

EFFECTIVENESS OF BOMBING IN NORTH VIETNAM

1. The cumulative effects of the air raids on North Vietnam continue to limit the capability of the North Vietnamese forces for overt aggression, but they have not reduced the ability to support military activity in South Vietnam and Laos, either at present or increased levels of combat and manpower.

2. The bombings appear to be having some deleterious effect on public morale. We have reports of consumer shortages, and the extensive evacuation of civilian personnel has caused some economic difficulties. There is no good evidence, however, that the leadership's resolve to continue the war has been weakened.

3. The bombings have forced the diversion of major resources and work forces to repair damage. North Vietnam has been denied the use of larger coastal carriers, and is severely limited in the use of established port facilities. Measurable losses to the economy and military establishment are estimated at \$184 million.

4. On the other hand, POL supplies have not dropped below 60-day levels since September 1, and attacks on rail, highway and waterway transportation have reduced efficiency but have not stopped movement. Energetic construction of replacement and alternate bridges have rail capabilities at their highest level since the bombing stand-down a year ago.

Tab B

CASUALTIES RESULTING FROM THE BOMBING OF  
NORTH VIETNAM

I. Total Casualties

1. The cumulative killed and injured attributable to the bombing of North Vietnam, estimated through September 1966, total about 29,000, of which 18,000 are believed to be logistics workers and other civilian personnel. Some 13,200 of the total casualties occurred in 1965, of which 6,000 were in the "civilian" category. During the first nine months of 1966 we estimate total casualties of 15,700 of which about 11,900 were civilians. (See Table I). On the basis of sample data through September 1966 the total casualties in 1966 are estimated to have been about 40 percent killed and 60 percent injured. This division is based on averages derived from the sample cases for which we have hard evidence.
2. The composition of the casualties resulting from the 1966 air campaign differs notably from that in 1965. Over 75 percent of the casualties in 1966 were logistics workers and other civilians, compared with 45 percent in 1965. Armed reconnaissance against military supply routes, which accounted for only 52 percent of the casualties in 1965 accounted for an estimated 93 percent of the total in 1966.
3. The increase in casualties during 1966 is a function of the growing scale of the air campaign, the greater emphasis on armed reconnaissance against lines of communications and the selection of a few fixed targets located in more heavily populated areas. Despite the increase in casualties, however, the number per mission has remained about stable.

4. The preponderance of civilian casualties resulting from the acceleration of armed reconnaissance has in large measure involved those civilians working at military targets or directly engaged in the maintenance and operation of the logistics system which moves supplies and personnel into Laos and South Vietnam. Hence, it is heavily weighted with transport repair crews, truck drivers, and personnel operating logistic craft on the rivers. The bombing campaign has generally been quite selective. The few official North Vietnamese statements protesting the extent of civilian casualties, while vigorously presented, actually cite very small numbers of personnel. The May 1966 North Vietnamese letter to the International Red Cross claimed only 239 civilian casualties since 31 January 1966, although implying many more. The Education Ministry in October 1966 stated that 300 students and 30 teachers had been killed since the bombings began. The well-publicized propaganda statement on the attacks against Nam Dinh, where heavy casualties would be expected, indicated that 37 percent of total casualties were innocent victims of the war--women, children and the aged. One would expect this propaganda statement to make the maximum claim possible. Even if the specific casualty claims for Nam Dinh were accurate, this percentage would not seem unduly high. Nam Dinh is a heavily defended population center subjected to heavy attacks and with many of its military targets located in densely populated areas. It is hardly a typical case, and this percentage should probably be regarded as the upper limit for casualties sustained by so-called innocent victims.

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II. Methodology for Estimating Casualties

5. Although we cannot claim absolute precision for our estimates of the number of civilian casualties in North Vietnam, a variety of available sources and analytical techniques makes us reasonably confident that these estimates are of the right order of magnitude.



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6. With the information provided by this wide variety of sources a number of analytic techniques are used to arrive at our estimates of casualties.

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a. Fixed Targets

The basic method of determining casualty estimates for attacks on individual fixed targets rests on a casualty prediction methodology developed by US intelligence analysts. This method is essentially an application of the predictable lethal effects of given types of ordnance to known target environments, particularly their population density. These factors are applied in conjunction with roof cover bomb damage assessments based on photographic analysis, and operations reports from specific attack missions. The number of casualties is determined by multiplying the average lethal area of the bombs dropped in target areas by the population density of the area and the number of structures in the area. These estimates are expressed in a broad range of minimum and maximum casualties.\* The maximum figures assume that the population in the target area was unwarned; the minimum figures assume warning and full resort to civil defense and protective measures.

The casualty estimates derived by US intelligence specialists are weighted by CIA on the basis of sample evidence of actual casualties obtained from Prisoner of War (POW) reports

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We have found fairly consistently that the initial attacks on JCS targets have inflicted casualties that are four times greater than the minimum military estimates. Consequently, we have adjusted the

\*The maximum figure would generally be 10 times greater than the minimum.

military estimates of minimum number of casualties by a factor of four for all initial strikes on fixed targets, and accepted the minimum estimate for all targets undergoing restrikes. [This assumes, and we believe the assumption to be reasonable, that once the target has been struck, warning is heeded and passive defense measures are adhered to.]

b. Armed Reconnaissance

i. Civilian Casualties

The CIA estimates of casualties resulting from armed reconnaissance strikes are expressed through a casualty/sortie rate derived from extensive analysis

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[Redacted]

This analysis yielded a rate of .23 casualties for each armed reconnaissance sortie.

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ii. Military Casualties

The information base for estimating military casualties resulting from armed reconnaissance missions is extremely poor,

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[Redacted]

The estimate of military casualties is, therefore, based on pilot reports of the number of targets destroyed or damaged, weighted by Defense Intelligence Agency (DIA) factors for the probable number of casualties to be expected for each type of target destroyed or damaged. In two specific categories--trucks and watercraft--the DIA casualty weights were decreased to reflect the information gained from POW reports

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In view of the poor data base available the estimates of military casualties resulting from armed reconnaissance are probably the most unreliable of all our casualty estimates.

III. Applicability of the Nam Dinh Claims

7. Total casualties at Nam Dinh

The propaganda statement\* distributed by the DRV Ambassador to foreign correspondents in Moscow early in November 1966 claims that from early 1965 to September 20, 1966, air attacks against Nam Dinh killed 89 persons among them 23 children and 39 women. Wounded numbered 405, including 41 children and 81 women.

The methodology used in calculating casualties in urban areas in the CIA report An Evaluation of Allied (US and GVN) Air Attacks Against North Vietnam [redacted]

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8 November 1965, was based on the city of Nam Dinh, which was used as a case study. The casualties at Nam Dinh in November 1965 were computed using composite estimates based on pre-strike estimates prepared for the JCS; a DIA estimate, assuming warning and based on examination of post-strike photography; and an estimate drawn from World War II experience. The latter was based on a review of casualties in bombed German cities during 1943, before blockbusters were used and fire storms were created. It was concluded that casualties (killed and wounded) for each air strike in urban areas would range from a minimum of 1 per 18,000 in population exposed to a probable of 1 per 12,000 to a maximum of 1 per 8,333. Applying these factors to the population of Nam Dinh (about 90,000)\*\* and to the six air strikes that had been launched against this city in November 1965, casualties were estimated as follows:

\*Report on US War Crimes in Nam Dinh, by Committee for the Investigation of US Imperialists War Crimes in Viet Nam of Nam Ha Province.

\*\*Based on a city with a population of 90,000 casualties per air strike range from a minimum of 5 and a probable of 7.5 to a maximum of 10.8.



Minimum 30      Probable 45      Maximum 65

The propaganda statement mentioned above claims that from early 1965 to 20 September 1966 a total of 47 day and night air strikes were completed against Nam Dinh, killing and wounding a total of 494 persons. Applying the estimating methodology used in the November 1965 CIA report to the number of air strikes claimed by the Communists produces casualty estimates as follows:

Minimum 235      Probable 352      Maximum 507

In a press conference on 29 December 1966, a Pentagon spokesman stated that military targets in Nam Dinh had been struck 64 times. Our methodology, described above, based on this number of strikes would produce casualty estimates as follows:

Minimum 320      Probable 480      Maximum 691

On the basis of these various methods of measuring probable casualties, we conclude that official North Vietnamese claims on Nam Dinh may be accurate as to total numbers.

8. Casualties Among Women and Children

Armed reconnaissance sorties accounted for more than 99 percent of the total attack sorties flown in the first nine months of 1966, compared with about 75 percent of those flown in 1965. The emphasis on armed reconnaissance rather than attacks on fixed targets during 1966 resulted in armed reconnaissance accounting for an estimated 93 percent of total casualties, compared with 52 percent in 1965. The

swing away from attacks on JCS-designated fixed targets had several notable results in terms of casualties in North Vietnam. In 1965 a greater emphasis on attacks on fixed targets, which are predominantly military, resulted in military personnel accounting for about 55 percent of total casualties. In 1966, however, military personnel accounted for only about 24 percent of total casualties.

The preponderance of civilian casualties resulting from the acceleration of armed reconnaissance has in large measure involved those civilians who are most directly engaged in maintenance and operation of the logistic system moving supplies and personnel into Laos and South Vietnam. Through September 1966, over 20,000 units of transport equipment and miscellaneous transport facilities have been destroyed or damaged by armed reconnaissance missions.

Armed reconnaissance missions also have destroyed or damaged over 10,000 miscellaneous military facilities such as barracks, supply warehouses, antiaircraft sites, radar and communications sites.

Through 30 September 1966 only 175 JCS fixed targets of all types had been attacked, of which 93 were direct military targets and 54 were railroad and highway bridges. There were less than 30 JCS fixed targets struck in the built-up areas where one might reasonably expect to find some concentration of women and children.

This is not to say that there have been no casualties among women and children as a result of substantial damage to military and transport facilities and equipment, including railroad and highway bridges. But by the nature of the functions these targets perform and their relative isolation from civilian activities

the probability of there being women and children in the target areas should not be high. This probability must be substantially less where men's work is being done, even by Vietnamese standards, than it would be in attacks on the more important economic targets in built-up areas. In the case of Nam Dinh the Communists claim that over one-third of the casualties to 20 September 1966 were women and children. There is no way of confirming or denying this statement. Nevertheless, it would appear to establish an upper limit to the percentage of this type of casualties in urban attacks. The attacks against Nam Dinh are not typical of the preponderance of the air strikes against North Vietnam. It would be logical to characterize the attacks against Nam Dinh as one extreme, and the bulk of the armed reconnaissance attacks against transport and military targets as the other extreme. In the aggregate of casualties, therefore, women and children would not be a large element.

Casualties among women and children would come from those too imprudent to stay away from repair activity, or those so unfortunate as to be present when our pilots have had to dump their bomb loads in order to avoid operational disasters.

Table I

Casualties Resulting from the Bombing of North Vietnam

	1965	January- September 1966	Total
Civilians	<u>6,000</u>	<u>11,900</u>	<u>17,900</u>
Attacks on fixed targets	2,000	700	2,700
Attacks on armed recon- naissance missions	4,000	11,200	15,200
Military	<u>7,200</u>	<u>3,800</u>	<u>11,000</u>
Attacks on fixed targets	4,300	400	4,700
Attacks on armed recon- naissance missions	2,900	3,400	6,300

Tab C

EVIDENCE OF THE GENERAL ACCURACY OF US AIR STRIKES ON  
NORTH VIETNAM

1. Post-strike photography provides good evidence that US air strikes have generally been accurate. There have been some occasions when ordnance was off target as a result of aircraft being hit and misfiring or because of some other accident, but the evidence indicates that such mishaps are infrequent. Eyewitness reports on the accuracy of US air strikes on North Vietnam are hard to come by

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2. Despite these limitations, there have been

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have provided evidence of the generally precise nature of the air strikes as well as information indicating that civilian casualties from these air strikes have been low.

3. The most recent eyewitness testimony of the fact that US pilots make every effort to expend their ordnance on target was provided by British journalist Norman Barrymaine, who just completed a three-week stay in the Haiphong area. He has stated that US pilots "were very courageous" in pressing home their attacks and in "not unloading their bombs on civilians by design."

4. Other Westerners who have been in North Vietnam have volunteered similar observations. French Press Agency (AFP) correspondent Jean Raffaelli, who spent six months in North Vietnam last year, reported

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on 14 October 1966 that "Haiphong and its suburbs have been attacked a dozen times since June, but there is no sign of damage in the city center."

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5. There was general agreement among a variety of sources that the US air strikes in late June 1966 against petroleum storage facilities in the Hanoi and Haiphong areas were extremely accurate.

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8. Even the North Vietnamese on occasion have admitted that civilian casualties from the air strikes are limited. The North Vietnamese press representative in Phnom Penh, for example, told [redacted] that "the bombed areas of Hanoi and Haiphong have been almost completely evacuated and consequently the number of victims has been relatively low in relation to property damage."

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