Vietnam: the true cost of war

The evening news dutifully records the obvious damage occuring in Vietnam. The world is witnessing in living color on television the wanton destruction resulting from the United States' dependence upon napalm, anti-personnel weapons, and saturation bombings.

The newspaper and television reports, however, only describe the agony of the day-to-day battle. In addition to this present battle front, the war is also attacking Vietnam's future. What has already occurred may dictate that no one will win tomorrow.

The war against Vietnam's future is continuing and may even be increasing as the war "winds down." Many areas of Vietnam now resemble the surface of the moon, due to the shelling and bombing; yet, within the past few months the largest conventional bombs ever used (15,000 pounds or 7½ tons) have been dropped from cargo planes to create landing areas.

The 500- and 750-pound bombs dropped from B-52s have also left their marks by creating craters as deep as 30 feet and as wide as 45 feet. Most craters remain filled with water even late into the dry season, becoming potential breeding grounds for mosquitos. They also make agricultural areas difficult to use. While war always mars the earth, special conditions in Vietnam and the length of the war have intensified the damage.

While the bombing increases in the winding down of the war, the much publicized U.S. defoliation program may be getting smaller. The United States has used defoliants in Vietnam since 1962. It increased the defoliation program sharply after 1965, reaching a peak of spraying in 1967, and slightly reducing the amount in 1968 and 1969. (In 1962 the area affected by defoliation amounted to 17,119 acres, and 717 crop acres were destroyed. In 1967, 1,468,446 acres were affected; 221,312 crop acres were destroyed.) Most of the spraying has been directed against forest and brush, but cropland in the mountainous part of the country has suffered severe damage. (United States military authorities believe that the food grown in mountainous areas is used to feed National Liberation Front forces.) Border areas near Laos and Cambodia have been widely defoliated. Forest areas north and northwest of Saigon have been heavily hit.

As a result of pressure from the public and from scientists, the White House in December of 1970 announced an "orderly yet rapid phaseout" of herbicide spraying in Vietnam. According to the Pentagon chemicals are still being used, but only in "remote, unpopulated areas and around the perimeter of firebases." How much defoliation is actually continuing is not public information, but to convince critics that the program is being discontinued, the military has transferred out of Vietnam the special fleet of C-123 aircraft that conducted most of the defoliation work. Spraying is continuing by helicopters.

A "not for attribution" major who handles reporters' questions at the Pentagon will not say when spraying will stop. But he assures callers that it "is being programmed out."

One source close to Senate critics of defoliation says that he has assurances from the military that the program is ending and that no more spraying will be done after this spring.

A reduction in sprayings may be occuring, but after eight years of massive chemical application to Vietnam, it could be generations before the full extent of the damage is understood. Studies on Vietnamese defoliation may shed some light on how much damage has been done and whether ultimate recovery is even possible.

In September, 1968, Fred H. Tschirley, assistant chief of the Crops Protection Research Branch in the Agriculture Department, released a report he had prepared for the State Department on the ecological effects of defoliation in Vietnam. This report shows that de-

foliation is seriously affecting Vietnamese plant life. Tschirley writes, "The defoliation program has caused ecological changes. I do not feel the changes are irreversible, but complete recovery may take a long time. The mangrove. . .is killed with a single treatment. Regeneration of the mangrove forest to its original condition is estimated to require about 20 years . . . The time scale for regeneration of semideciduous forest is unknown." Gordon H. Orians and E. W. Pfeiffer, two scientists who visited Vietnam under the auspices of the Society for Social Responsibility in Science in 1969, confirm and extend Tschirley's findings in an article in the May, 1970 issue of *Science* magazine.

Pfeiffer and Orians traveled by helicopter over areas hit by B-52 bombing raids and flew on missions with C-123 aircraft modified for spray applications. They also traveled through the Rung Sat Special Zone, a region of mangroves on the Nha Be River, which has been heavily defoliated. They report extensive damage by defoliation throughout Vietnam — most notably on plant life, but also on certain fish and bird species, and possibly mammals as well.

Most areas on the Rung Sat Peninsula that they observed were still completely barren, though some had been sprayed several years before. They rarely noticed regeneration of mangrove trees. In fact, soil conditions of the Vietnam mangrove forests may prevent the herbicides from decomposing. Thus, "it cannot be excluded that reestablishment of the original forest may be impossible except along the edges of the river channels and backwaters." In many forests only bamboo and ground brush recovered from defoliation treatment, not taller trees. (Tests run in Puerto Rican rain forest plots show that sometimes apparent refoliation can be deceptive. In some areas, where the forest is covered with canopy, this ceiling is not composed of trees but rather of vines which have climbed on the trunks and dead trees and spread out. As well as disguising the devastation, these vines often prevent the forest from recovering, since the dead tree trunks will probably collapse under their weight in a few years.)

Vietnam has suffered extensive damage to rubber trees because of herbicide spraying. More than 40,000 hectares planted with these trees have been defoliated to some extent. In many cases, the destruction has not been intentional. The defoliant has been carried by the wind from application in the general area. The destruction of rubber plants has already caused Vietnam severe economic hardship. In 1960, 77,560 tons of dry rubber were produced. Rubber exports amounted to $48,000,000. In 1967, the amount produced had dropped to 42,500 tons - $12,800,000 worth. Most of the small rubber plantations in Vietnam have had to go out of business because of the financial loss. Only the large planters can afford to stay in operation. The Rubber Research Institute of Vietnam reports that defoliation threatens the entire rubber industry of Vietnam. Scientists throughout the country confirm this. The Chemical Operations Division of the United States Army, however, insists that rubber trees cannot be killed by defoliants.

Few Vietnamese are able to recover claims for the damage done to their land. Funds for the payment of defoliation claims are provided by the United States, but the South Vietnamese government handles the claims. Vietnamese say that often people who file claims are threatened with imprisonment.

According to Orians and Pfeiffer, the herbicides used in Vietnam have caused extensive damage to animals, due to their widespread killing of vegetation. The scientists write, "During our tour of the defoliated areas we did not see a single species of insectivorous or frugivorous bird with the exception of barn swallows....Our experience in mangrove areas in tropical America indicate that there would have been large numbers of land birds."

In December, 1970 the Herbicide Assessment Commission of the American Association for the Advancement of Science released a report on defoliation in Vietnam. In studying the damage caused by U.S. defoliants, it found major, and probably irreparable, damage had been done to vast areas of the country. In reporting on the spraying of 346,000 acres of mangrove forests, members of the commission stated that mangrove species are particularly sensitive to defoliants.

In sprayed forests all vegetation is killed and the scientists found "little or no recolonization by mangrove tree species after three or more years." It reported that without the trees and vegetation, areas could not support "most of the bird and ground animal species associated with the previously existing mangrove forests." It did find the proliferation of other species such as crabs.

In other forested areas, similar results were reported. The hardwood forests that have been sprayed are also, according to the report, severely damaged. Bamboo species are spreading over what had once been lush forests, filled with marketable hardwoods. In addition to being economically worthless, the bamboo will retard the reestablishment of hardwood trees for many decades.

The AAAS Herbicide Assessment Commission concluded in typically scientific fashion that more studies should be initiated about the problems resulting from the defoliation effort. It made particular reference to the lack of information available on birth defects in the sprayed areas. This concern emerged after laboratory tests on Agent Orange, one of the major defoliants composed of 2,4,5-T, revealed it can cause birth defects in mammals.

Even the barren gestures the United States makes to "help rebuild" the country it has destroyed are distinguished by a lack of concern for the Vietnamese, promising to do little more than raise further ecological havoc. The Mekong Basin project, backed by Lyndon Johnson and assorted United States bankers and engineers, will provide another source of ecological disorder in the future. The project provides for the construction of major hydro-electric dams in the Mekong River. A study by the Agency for International Development shows that the proposed dam on the Laos-Thailand border will form a lake one quarter the size of Lake Erie and force resettlement of 300,000 people. 500,000 people will be displaced in Cambodia by the Stung Treng dam. In addition, the change to year-round irrigation which the dams will bring may multiply disease carrying snails, now controlled by the dry season. The dams will also necessitate increased use of fertilizers, which will pollute the rivers and lakes in the area, and may cause flooding of some of the best hardwood and cotton producing sections of Thailand.

John Milton, an ecologist with the Conservation Foundation, joined a team

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April 24

Environmental Action believes that war is the worst pollutant. To show our concern, we are endorsing the April 24 non-violent anti-war marches on Washington, D.C. and San Francisco, coordinated by the National Peace Action Coalition.

Further information can be obtained from the NPAC Office, 1029 Vermont Avenue, N.W. Washington, D.C. 20005. Their phone number is 202-638-6601.

Ford's better idea?

We regret that we were unaware of the new Health, Education and Welfare figures when we commented on Ford Motor Company's stockholders report. Even though their statistic is correct, not all Ford's claims are true. In our December 12, 1970 comment we quoted the Ford report: "Automobiles contribute to air pollution. But they are not the only cause or even the chief cause ...." No one other source contributes as large a percentage of pollution as do motor vehicles, so they are indeed the chief cause of air pollution.

Investigation of the way HEW arrived at the figure of 39 percent reveals that the role played by the auto may be underestimated. Included as sources of emissions in the Nationwide Survey of Air Pollution Emissions are forest fires, agricultural burning, and burning of coal refuse. While these sources account for a substantial percentage of the total national emissions, generally they do not pollute urban areas (where the people are). To better approximate the relative contribution of autos to urban air pollution, the list should be recomputed without the three rural sources. If this were done, the auto's relative contribution of carbon monoxide would increase from 59 percent to 71 percent. The relative contribution of the auto to the total would rise from 39 percent to 45 percent.

Furthermore, federal officials have learned that automobiles emit more pollution than was thought at the time of the 1968 HEW survey. New testing procedures have been developed recently which show that emission control has not met federal standards. In addition, emission control systems are deteriorating more rapidly than anticipated. The Air Pollution Control Office (APCO, which formerly was the National Air Pollution Control Administration (NAPCA)) is in the process of quantifying these factors and revising their estimates. At present and until the revisions are calculated, APCO is stating that automobiles account for nearly half the total air pollution.

The Ford letter says that according to a California study autos contribute only 12 percent of the air pollution problem "based on harmfulness." The index used in this study underestimates the harmfulness of auto emissions. It sets the harmfulness level for carbon monoxide, for example, at 20 parts per million; within weeks after the study was made public, the federal government issued a 9 ppm harmfulness standard for carbon monoxide. Federal criteria for nitrogen oxides are similarly lower than those used in the study.

By its own admission the California study underestimated the impact of hydrocarbons by omitting consideration of reactive hydrocarbons (those which interact with oxides of nitrogen and oxygen in sunlight to form poisonous photochemical smog). In Los Angeles, the only area for which figures on reactive hydrocarbons were available, autos contribute 86 percent of reactive hydrocarbons but only 68 percent of the total hydrocarbons.

Environmental Action strives for accuracy in all that we print. We are proud that we make very few errors of fact, and we apologize to Ford for *our* mistake.

Ford

Ford Motor Company

The American Road
Dearborn, Michigan 48121

February 5, 1971

Mr. Sam Love, Editor
Environmental Action
666 11th Street, N. W.
Suite 400
Washington, D. C. 20001

Dear Mr. Love:

We have noted your comment ("Ford's deceptive statistic") in the December 12, 1970, issue of Environmental Action, charging that our Third Quarter Report to Ford stockholders contains "an outrageously misleading statistic" on the automobile's contribution to total air pollution.

Our 39% figure for automobiles is taken from HEW's Nationwide Inventory of Air Pollution for 1968, published in August of 1970.

Your 60% figure is also an HEW number -- but for 1966, at least two years obsolete. Like the 1968 figure of 39%, however, it too is a percentage by weight -- the only possible quantitative measure.

A qualitative measure of air pollutants also exists, of course -- a percent based not on weight but on harmfulness. This figure, which you suggest would be more embarrassing to the auto industry, is in fact much more in its favor. In September of 1969 the California Air Resources Board reported that, "based on harmfulness," motor vehicles contributed only 12% of the total problem. The attached government charts bear this out.

Measuring only the most harmful pollutants of all -- sulphur oxides and particulate matter -- the U. S. government recently reported that automobiles contribute only 4% of the problem.

I can assure you that we check and recheck all that we publish in order to be accurate and not misleading.

Sincerely,

P. E. McKelvey, Manager
Stockholder Relations

War...

of Smithsonian scientists in a 1970 study of the Mekong River Dam project funded by the Agency for International Development. He concluded that the development plans would result in serious public health problems. Milton and other members of the research team stressed that "alternative ways of achieving development" should be considered. Specifically, Milton recommended recently that the needs of Southeast Asians can be better met by building irrigation tanks to store water for dry periods, and local fish ponds to supply extra protein. He also feels that Vietnam needs an integrated population control program "to keep human numbers within the carrying capacity of the land."

Up to this point about $200 million has been spent on the Mekong project. The United States has directly provided 17 percent of the money through foreign assistance programs to the Mekong Committee which is composed of represenatives from the governments of Thailand, Laos, Cambodia, and South Vietnam. Other money for the project is coming from international loans and the host countries.

Most of the money has been used to study the feasibility of the project and to start construction of two dams. Some environmental impact studies, similar to Milton's, have been funded.

Even without construction of the new dams, the ecology of Vietnam will never recover from the United States' presence. How much irreparable damage has been done is uncertain. That uncertainty may be underscored by an indefinite future.

No one knows when or how the war will end. If it ends, new conflicts may emerge over which countries and companies exploit Vietnam's resources. With an energy crisis facing most highly industrialized countries, newly discovered oil reserves in Southeast Asia may create new problems. And if there is one thing Vietnam does not need, it is more problems.

— Sam Love