

Dichloro-diphenyl- trichloroethane (ddt) and the environment

[Environment](#)



**ASSIGN
BUSTER**

DDT, otherwise known as dichloro-dyphenyl-tricholroethane was synthesized as early as 1874 by a German chemist. However, its insecticidal characteristics were not utilized until 1939 by Paul Muller, who later on bagged a Nobel Prize in Physiology or Medicine in 1948 for such discovery. Right after its discovery, its insecticidal characteristics were immediately put into use. DDT is now known worldwide for its use as an effective and efficient insecticide (Carson 20).

Muller, together with the Geigy Corporation, availed patent for DDT in the following countries: Switzerland in 1941, England in 1942, and the United States in 1943 (Edwards and Milloy). DDT was first used in the United States in 1942. In 1944, it was used to kill gypsy moths through aerial-application programs. It was considered as a very efficient tool to kill insects by applying in a rate of one pound per acre. By a very small dose, it can kill all the insects within that area.

DDT poisons an insect by causing disturbances in its central nervous system, which in turn, results in “ hyperactivity, tremors, and uncoordination” (Gerardi & Grimm 110). Prior to the use of DDT as an insecticide, a higher number of servicemen lost their lives to typhus than to bullets during the World War I. However, typhus was no longer a problem come World War II. The world saw and was marveled by the effectiveness and efficiency of DDT in fighting diseases transmitted by insects. Among these diseases are malaria, dengue, yellow fever, and encephalitis (Sirkin & Sirkin). By the 1960s, DDT brought malaria to near extinction.

The National Academy of Science even acclaimed that mankind owes so much to DDT. In a span of two decades or so, it has saved 500 million human
<https://assignbuster.com/dichloro-diphenyl-trichloroethane-ddt-and-the-environment/>

lives from malaria. This serves as evidence to the efficiency and effectiveness of this chemical. Had its insecticidal characteristics been discovered earlier, it could have prevented more and more deaths due to different diseases caused by insects (Sirkin & Sirkin). Clearly, these advantages brought by the use of DDT have paved the way for people to easily accept the use of such insecticide. The world has seen how DDT helped save lives of millions of soldiers battling in the World War II.

Also, the world has served witness as DDT had put malaria almost to an end, thus considerably lessening the number of people dying due to such illness. Another advantage of DDT is its efficiency and affordability. The effects of DDT are considerably a lot longer than that of other chemicals. This saves money due to fewer applications. Also, the use of DDT is simpler than any alternatives thus, making it more efficient to use (Schiff). Aside from what DDT has to offer, it had gained popularity because of its effectiveness coupled with a very affordable price.

The effectiveness of this chemical makes it possible for users to apply such in a very minimal level. As previously stated, this chemical lasts longer as compared to other kinds of insecticides in the market, which may require more frequent application. Although DDT contributes a lot of advantages to its users, it is quite inevitable that the same goes with its disadvantages. Just some few years after the discovery of its use as an insecticide, DDT had already won quite a number of people, who oppose such belief in this insecticide.

In spite of the popularity DDT is gaining as an effective and efficient insecticide, one woman has influenced many people to change their view <https://assignbuster.com/dichloro-diphenyl-trichloroethane-ddt-and-the-environment/>

regarding this insecticide. Rachel Carson exposed the many hazards brought by the use of DDT. Eloquently, she questioned humanity's strong faith in technological progress, thus setting the stage and paving the way for the formation of environmental movements, worldwide ("The Story of Silent Spring"). Carson, a biologist and once an English major, expressed her opposition against the use of DDT as an insecticide in her book "Silent Spring."

This book exposed a number of detrimental effects brought by the use of DDT as an insecticide ("The Story of Silent Spring"). The book meticulously described the ways on how DDT entered the food chain, and then accumulated within the fatty tissues of certain animals, which includes human beings, and how this can cause cancer and genetic damage (Carson 21). According to Carson, one single application of DDT on a crop would kill insects for a period of weeks and months. Not only were those targeted insects killed but countless more species. Worse, the crop remained intoxicated within the environment even after being diluted with rainwater.

Carson concluded that the insecticide DDT, along with other pesticides had irreversibly injured birds and animals, and had infected the entire food supply ("The Story of Silent Spring"). DDT is a very persistent chemical, which becomes concentrated within the tissues of an animal. The concentration of DDT is higher on animals, which are on top of the food chain. DDT is toxic particularly to fish and insects. While not totally toxic to birds, DDT may cause long-term reproductive difficulties by causing eggshells of birds to weaken and crack thus, threatening the continued existence of many bird species.

<https://assignbuster.com/dichloro-diphenyl-trichloroethane-ddt-and-the-environment/>

Due to its chemical nature, once DDT had been applied in a field or any other environment, it remains active for decades (“ Why was DDT banned originally in the U. S.? ”). In the United States, the DDT insecticide has caused turbulence in the existence of bald eagles, along with peregrine falcons, and brown pelicans. As mentioned earlier, DDT affects fish, which is the primary diet of these birds. In a Newsweek article, it was reported that DDT builds up in the bird’s body, which in turn causes eggshells to grow thinner. With thinner eggshells, few chicks were hatched thus, causing the bird population to decline tremendously (Quindlan).

Carson’s book was so influential that it has caused drastic measures from the government. As such, DDT was banned in the United States in 1972 as it contributed to the near extinction of several bird species such as the peregrine falcon and the bald eagle (“ Why was DDT banned originally in the U. S.? ”). In spite of the success of the call against the use of DDT spearheaded by Carson, her arguments, which was purportedly backed by scientific researches does not hold true nowadays. Recent scientific studies show that DDT does not pose any detrimental effect on human beings.

DDT was directly applied to people back in the 1940s and they have not developed any adverse reaction to DDT. This alone falsifies Carson’s claim that residual effects at the very least could cause cancer to human beings. One experiment concluded that the ingestion of DDT by volunteers, even when repeated, had shown very low level of lethality. This will only lead to vomiting, which will eventually eject the chemical from the body (Bate 46). There is also no strong ground on Carson’s argument that DDT is to stay in one’s system as a result of biological magnification.

<https://assignbuster.com/dichloro-diphenyl-trichloroethane-ddt-and-the-environment/>

Aside from the fact that this claim lacks scientific reference to support it, other scientific principles were neglected by Carson in asserting this claim. Carson failed to recognize human's ability to metabolize and to break down DDT in its system. Also, she missed on the very obvious fact that body excretions such as urination will get rid of this chemical from the system, thus preventing her claim about biological magnification (Murray 35). There are also scientific claims that DDT did not cause the thinning of bird eggshells.

The Heartland Institute reported that, just shortly before the Environmental Protection Agency (EPA) ruled to ban DDT, an environmental law judge from the said agency had held that scientific inquiries have discredited the claims against DDT. The judge concluded that " DDT is not a mutagenic or teratogenic hazard to man. " Further, it was said that DDT has no huge adverse effect on fish. (Taylor). The ban on DDT can be considered as a political action rather than a scientific one with the goal of protecting public health. A study in the United Kingdom shows that eggshells started to thin even before the use of DDT.

Eggshell thinning is caused by industrialization. Acids from pollutants may have altered water and soil chemistry, causing a decrease in calcium availability. Calcium is critical in the formation of eggshells (Milius). The use of DDT has been banned for quite several years, not only in the United States, but in other parts of the world as well. Several nations had followed the steps taken by the United States to preserve the environment through the non use-of the DDT chemical in insecticidal applications. However,

events taking place from the recent past years have caused to renew the call for the reuse of the DDT insecticide.

Millions of lives are being taken, especially in Africa by a disease called malaria. This disease is the primary cause of deaths in Zambia. Among its victims are pregnant women and children under five. There is an estimated 500 million cases each year, and around one million deaths (Bate, 32). Babies and those very young children do not possess any resistance to the parasite, which is transmitted by the *Anopheles funestus* mosquito. When the mosquito pierces into the skin to suck human blood, malaria is also transmitted (Silberner).

Malaria is transmitted when the mosquito pierces into the skin. The mosquitoes' saliva carries very little, wormlike, one-celled malaria causing parasites called plasmodia. Fifty thousand of these can fit in a size of the punctuation period. Twelve of these can slip through the human skin. But only one of these is enough to kill a person (Finkel). The US Agency for International Development (USAID) has already endorsed the use of DDT insecticide for indoor use to help fight malaria in May of 2006, expecting the World Health Organization to follow suit (Stokes).

USAID was correct with its expectation. The World Health Organization had made a major policy change. It is actively promoting the controversial insecticide DDT as a means to control malaria. Malaria kills millions of people in Africa each year, despite years of effort to eradicate the disease (Silberner). A considerable number of environmental groups do support the limited use of DDT such as indoor spraying once or twice a year. This particular type of use has been supported by the Sierra Club and <https://assignbuster.com/dichloro-diphenyl-trichloroethane-ddt-and-the-environment/>

Environmental Defense, an organization originally founded by scientists concerned about DDT.

President Bush's initiative on the fight against malaria also includes the limited use of this insecticide (Silberner) Now that international organizations are favoring the limited use of such insecticides, perhaps it is now time for governments to reconsider lifting the ban on the total use of DDT as an insecticide. It is very clear that human lives are in danger and no other alternatives have been discovered to at least be at par with the results of DDT use.

The main issue to this date, as far as African nations are concerned, is to find the most efficient way to eradicate malaria. A thought worth pondering is to ask whether we are pooling our resources and using the most efficient tool to stop malaria. If I were to answer that question, I say no. Now that the world is facing a battle that easily claims lives of millions of people, not to count those lives which has already been taken, the people themselves had been reluctant and too conservative to make use of the insecticide known as DDT.

This is not a time for political dramas. Scientific findings are now available to falsify the claim that DDT poses threats to mankind. As of this writing, the very clear threat I have in sight is not the threat of losing bald eagles; not the threat of accumulating harmful chemicals in the body. What is very clear is the threat or rather the reality that millions of people are dying of malaria just because we are too reluctant to make use of the DDT insecticide.