

Agent Orange and its Continuing Effects

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Abstract

Agent Orange was one of the most deleterious occurrences of the Vietnam War. It was one of the Rainbow Herbicides used on the South Vietnamese landscape, as a military tactic. Agent Orange produces a poison called Dioxin, which had harmful and lasting effects on both Vietnamese and Vietnam Veterans. The effects rendered the Vietnamese environment unfit to live in, as Dioxin is highly contaminating and poisonous to all living things. Thirty years later, the effects are still felt for the first generation of people that went through the direct spraying, their children and possibly their grandchildren.

Agent Orange The Beginning

When Agent Orange is mentioned, it is usually associated with war. Most do not know about the product, or the effect that it has had on thousands of people; all that is understood is the Vietnam Conflict. There was more to the Vietnam Conflict than realised and the special operations the soldiers had to perform.

In the beginning, Agent Orange was a complete anomaly. Its origins began during World War II in a US laboratory. After discovering the effects of this herbicide (2, 4-D) on plants, it was given to the United States Army, where it was decided the Army had no real use for it. It was later found that this herbicide had more use in the marketplace as a weed killer. These chemicals were used in the United States for public application by heavily diluting them with water or oil and usage of these chemicals was discontinued in 1979. The Army continued to experiment with this herbicide, mixed it with another (2, 4, 5-T) and found that it had almost immediate negative effects on foliage. When these two chemicals were mixed, they produced a deadly poison called Dioxin that was proven to be carcinogenic. Scientists have made claims that Dioxin is the most dangerous man-made poison ever produced (the chemicals that produce Dioxin are 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T)).

Rainbow Herbicide Environmental Warfare

To make the compound called Agent Orange; pour in equal amounts of the 2, 4-D and of the 2, 4, 5-T, mix well, and disperse. (Note: This mixture is not diluted). Agent Orange was a military strategy. The Army felt that in order to get the best and most destructive results, straight mixtures of the compounds would be best. No one realised that the most detrimental chemical was being produced when making the Agent Orange mixture, Dioxin. Agent Orange was not the only chemical herbicide mixture to be used for chemical warfare against the Vietnamese.

Agent Purple, Agent White, Agent Green, Agent Pink, Agent Blue (which contained arsenic), and Agent Orange II (Super Orange) were also used. Together these herbicides came to be known as Rainbow Herbicides. Agent Orange was more widely used because of its profound and quick effects. The components of the Rainbow Herbicides are:

- Agent Orange 2,4-D and 2,4,5-T between 1965-1970;
- Agent Orange II (Super Orange) 2,4-D and 2,4,5-T between 1968-1969;
- Agent Purple, Pink, Green, and Dinoxol 2,4,5-T between 1962-1964;
- Agent White, Picloram and 2,4-D;
- Agent Blue, Arsenic;
- Trinoxol 2,4,5-T between 1962-1964;
- Diquat, Bromacil, Tandex, Monuron, Diuron, and Dalapon all used between 1962-1964.

The Rainbow Herbicide war started in 1962 and did not end until 1971. During this span of time, pilots sprayed these chemicals, mainly Agent Orange, which inundated the once lush and beautiful expanse of South Vietnam. Military installations had dying plants. Vegetation

and tree canopies withered away and died when the water supply became contaminated. The Vietnamese had no arable farm land left and nothing would grow in their soils. Fish, amphibians and other aquatic animals that the Vietnamese relied upon for sustenance, died or accumulated Dioxin poi-son in their fatty tissues. When humans ate them, the poison bioaccumulated into their fatty tissues. People were tested and it was found that the Dioxin poison was fifty times higher than Environmental Protection Agency (EPA) guidelines allowed for individuals. Aquatic life affected by the poisoning, could no longer reproduce and stopped the way of life for thousands of individuals. People were forced to move from their South Vietnam homes, seek shelter, and work in Northern Vietnam. The Ho Chi Minh Trail was the hardest hit in South Vietnam.

Effects of Agent Orange

Agent Orange was found to be very dangerous, and the effects were known during the late 1960's and early 1970's. (United States Government officials covered up the studies and reports presented to them, as they did not want the backlash of people knowing the danger they put them in.) individuals knowing the dangers of Agent Orange had the most to gain. included were chemical companies that made the Agent Orange chemicals (which could lead to govern-ment restrictions on them). US Government scientists and representatives were appraised of its poisonous effects; the American Medical Association (which had a lack of concern for preventive medicine); and the Centers for Disease Control and Prevention (were told not to perform studies and tests by US Government officials). Without action being taken by these sources, people became agitated and extremely upset that Vietnam Veterans, were not being taken seriously, or even believed. Vietnam Veterans had ongoing com-plaints of sickness and other side effects they suffered from direct contamination of Agent Orange and the Rainbow Herbicides.

During spraying of Dioxin-laced oil to keep the dust down on the roads in the 1970's, in Times Beach, people were exposed to Dioxin.

When the government learned that people in Times Beach were exposed to levels of Dioxin with levels 33,000 more times toxic than EPA levels allowed, quickly, they responded. The US Government felt that this contamination was so bad that they moved the residents and bought their homes. That area is still considered a contaminated "hot spot". Vietnam Veterans were greatly upset because their exposure was considerably more than the residents of Times Beach. The US Government still did not take any positive action to alleviate and assuage their fears. Exposure levels of the Vietnam Veterans were so great, pilots would come back with herbicide on them. Accidental sprayings, improper cleaning of drums (soldiers used the barrels for cooking and storing of food stuffs), and transportation of Agent Orange (which sprayed out of the exhaust systems of trucks, jeeps, and gasoline generators) increased exposure to Agent Orange for multitudes of people without the realisation of what was happening.

Soldiers started developing serious health problems due to exposure of Agent Orange. There were birth defects, cancers to soft tissue organs, skin rashes, liver and skin diseases, and mood swings. Studies conducted in the year 2000 proved a correlation between diabetes and heart Disease and Agent Orange. Tests were continuously proven to be inconclusive or fraudulent that there was no correlation between Agent Orange and the problems/diseases already mentioned.

The soldiers continued to question why the US Government did not provide assistance with these diseases. They tried to sue the US Government but failed because of an arcane 1950 lawsuit in which the Supreme Court ruled that the US Government is not responsible for deaths, injuries or losses related to military service (*Feres v. United States*). The next step was to sue the chemical companies; the chemical companies paid a settlement, where most of the money went to the lawyers. Very little, if any money, went to the veterans and their families. There are a few representatives working to help the Vietnam Veterans, but their work is slow, arduous and stonewalled.

What About Now?

The question still remains, what about now? Are the effects still present? Is it safe to go back and live in the environment that was once sprayed without remorse and was considered to be a contaminated "hot spot"? Dispersed over thirty years ago, Agent Orange and its by-product, Dioxin, is considered to still be one of the most harmful poisons ever to be introduced into an environment. It is still very much present and dangerous. Dioxin breaks down very slowly in the environment. Reports are starting to show that the effects of Dioxin in the environment are breaking down and are slowly degrading.

Agent Orange was sprayed liberally in areas where the Vietnamese were hiding, or where they hid their food and other essentials. Areas that got affected were not just the vegetation but soil, rice paddies, and waterways. Aquatic life ingested contaminated soil, and in turn humans ate shellfish, fish and animals that drank directly from these waterways. This exposed humans to more Dioxin than just the spraying. The second generation, has levels of Dioxin that is equivalent to the first generation proving that the surrounding environment is presently contaminated to levels as it was before although evidence does show that Dioxin is slowly degrading in the environment.

There are numerous treaties and global activist groups to remove the residues of Dioxin present in the environment. Dioxin is considered to be of the Persistent Organic Pollutants, which are organic compounds that are resistant to environmental degradation through chemical, biological and photolytic processes. They have been observed to persist in the environment, to be capable of long-range transport, bioaccumulate in human and animal tissue, biomagnify in food chains and to have potential impacts on human health and the environment. Currently, there are programmes to try to rid the natural environs of these Persistent Organic Pollutants. Additional programmes are in place to try to regenerate the foliage lost in the defoliation campaign initiated by Agent Orange. Efforts to try to re-grow the lush canopy of the palm fronds and natural species indigenous to the area, are slowly beginning to show improvements and growth. Some feel that the Agent Orange contamination problem presents itself as an opportunity to study and truly understand the environmental and health effects of dioxin.

It was not known until the early 1990's that Dioxin was an endocrine disruptor, reaches human fetuses through the mother's placenta and breast milk, causes spina bifida in offspring of Vietnam veterans and is the cause of at least ten other diseases. Agent Orange may be the cause of other health problems that have not surfaced yet.

How are people faring after all this time? Besides health effects, there is nothing they can do but watch what has been happening to them as well as their children. Children are being born with physical deformities, mental retardation, miscarriages, stillbirths and the diseases mentioned earlier. The US Government does not have enough money to support research studies and testing of their own people in determining what the best method would be to help them. Other industrialised countries, because of interest from their scientists and epidemiologists, are helping the Vietnamese government, but only to a certain degree. The people affected are outcasts in their own home-land. They cannot go back to the country they grew up in and raise their families, because of contamination and lack of vegetation growth to sustain them.

According to Richard Leach, "Ecocide is defined as the deliberate destruction of the environment by pollutants or an act of war. Major structural changes are urgently necessary: the Persistent Organic Pollutants problem requires more than belated commitments to a clean-up, or the "happy ending" of a successful law-suit. The widening recognition of the need for a major overhaul in the regulatory apparatus will lead to a radical extension of democracy, by placing the responsibility for proving a chemical is safe upon industry, with industrial application conditional upon the results of independent testing. Nothing less can provide a minimally adequate solution to this crisis, as is now widely understood". Responsible parties for the initiation of Agent Orange should never have allowed it to get to the massive destructive proportion that it is at now. Money and greed overruled what was ethically and ecologically right. Now is the time for these chemical companies to actually try to clean up their mess and take responsibility. They can no longer hide behind hidden memos and keep things of this magnitude amongst themselves. Not only are they dealing with a supposed "enemy", but this enemy has a face and a home, destroyed in the name of war. With

recent occurring events, what right does any nation have to declare war on another, regardless of industrial or no industrial capability? As long as money and power have authority over everything in this world, there is very little hope of ever trying to reverse damages already done.

Public health effects of actions like Agent Orange make people wonder how could this have got so out of control with the ever lingering question of, Why? Scientists can study the effects of Agent Orange for years to come, but the health effects are prominent and devastating. Not only for those afflicted directly, in this case the Vietnamese, but for soldiers and their families. Families have to live with the problems that soldiers brought home from Dioxin poisoning and which they are passing on to their offspring. They also created one of the worst ecological disasters akin to Chernobyl and which made Hiroshima look like a tidal wave.

in just a short time, mankind actually destroyed a large swathe of the natural environment and there is very little that anyone can do. Most programmes that are in effect take an enormous amount of effort for a majority of the populations involved. Populations do not care about each other enough to work towards a common goal (unless of course it behoves them monetarily).

i am always reminded of Agent Orange when I think of the Vietnam War because it directly affects my family, since my father flew on some of the missions that carried the herbicide. i am also reminded of the saying of King Solomon of ancient Jerusalem who when he completed the writing of Ecclesiastes around 1000 BC wrote that "There is no man having power over the spirit to restrain the spirit; neither is there any power of control in the day of death; nor is there any discharge in the war.. .man has dominated man to his injury", i see how mankind has ravaged the environment.

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