

# Malaria and the Anti-DDT Campaign

## Environmentalism and the Poor

Roger Bate

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**M**alaria kills over one million people every year, many of them children, and the number of deaths is increasing.

Over the thousands of years that malaria has plagued man, many methods of protection against the disease have been devised. One of the most effective methods, and arguably the cheapest, is to spray indoors with insecticides to repel, irritate and kill the mosquito that carries the malaria parasite—the vector control method. Surprisingly, one of the oldest pesticides is still the best at controlling mosquitoes, and that is dichlorodiphenyltrichlorethane, commonly known as DDT. With the surge in malaria incidence around the developing world, one might think that DDT production would be increasing. But instead its production is falling and its use limited to those few countries that still have supplies.

The reason for this baffling disparity is that DDT, along with other organochlorine compounds, have been damned by environmentalists. Gradually, governments in the industrialised nations have been persuaded to restrict DDT because of fears of damage to the reproductive process of birds of prey. The heroic malaria eradication programme of the postwar years used DDT as its primary weapon and was completely successful in North America and Southern Europe and greatly reduced incidences in many other countries.

Today, where it is necessary to control insect-borne diseases in rich countries, they have the resources to use alternative methods. The same is not true for developing nations. Public health activity in many developing countries is wholly or partly reliant on

overseas aid agencies. Since donor countries frown on DDT, these agencies are extremely reluctant to countenance its use in other countries.

We know that Belize, Mozambique and Bolivia have stopped using DDT because they feared the loss of donations to health programmes. It is highly likely that other countries have also succumbed.

While this may seem a logical conclusion based on reasonable precaution, the result is a health policy which shrugs its shoulders at the loss of human life. So far, the priority of protecting life in the poor parts of the world has been placed below that of concern for wildlife in western states.

### When politics kills

DDT is not harmful to humans, even in relatively high doses. No study in the scientific literature has adequately shown any human health problem from DDT. Environmental damage has only occurred during widespread agricultural use of DDT in the 1950s and 1960s, when the amount sprayed ran into millions of tons in America alone. The resultant concentration of DDT led to eggshell thinning and allegedly other effects, but these problems have been shown to be reversible. Low dose use of DDT indoors is therefore unlikely to cause any significant irreversible harm to the environment.

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Spraying of DDT in houses and on mosquito breeding grounds was the primary reason that rates of malaria around the world declined dramatically after World War II. Nearly one million Indians died from malaria in 1945, but DDT spraying reduced this to a few thousand by 1960. However, the concerns about the environmental harm of DDT led to a decline in spraying, and a resurgence of malaria. Although deaths are not as high as in 1945, there are once again millions of cases of malaria in India, and over 300 million cases worldwide every year—most in sub-Saharan Africa. And the number of cases is accelerating. For example, cases of malaria in South Africa have risen by over 1,000% in the past five years. Only those countries such as Equador that have continued to use DDT have contained or reduced malaria.

Malaria is obviously a human tragedy, but it is also an economic disaster. According to Jeffrey Sachs of Harvard's Center for International Development, malaria costs about 1% of Africa's wealth every year. In many countries, malaria halves the growth that would otherwise have occurred.

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Since 1995, the United Nations Environment Programme (UNEP) has led Intergovernmental Negotiating Conferences (INCs) to develop a treaty to reduce and/or eliminate twelve Persistent Organic Pollutants (POPs) from worldwide production and use. Throughout the debate, which has pitted the opinion of the public health community (including hundreds of scientists in nearly 60 countries) against the opinion of environmental groups, there has been no disagreement on one very important fact: DDT saves lives from malaria, and can cause very little harm to the environment. But since the treaty is still to be signed it is uncertain whether DDT will be banned or restricted.

#### **The cost of alternatives to DDT and the finances of poor countries**

Part of the reason that malaria is such a severe health problem in the world is that the world's poorest countries have few financial resources to control it. This is most striking in Africa, where very poor and malarious countries such as Benin, Ethiopia, Madagascar, Mozambique, Nigeria, Tanzania, The Gambia and

### **THE PRECAUTIONARY PRINCIPLE AND DDT**

Environmentalists often claim we should apply precaution to decisions involving chemicals. The precautionary principle is used by environmentalists to justify the restriction of certain technologies on the grounds that these technologies might be harmful.

However, scientific proof does not always seem to be a requirement for environmentalists . . . Greenpeace states: ' . . . Relying on a precautionary approach based purely on science is not enough.'<sup>1</sup> . . . It seems to be conveniently forgotten that DDT has saved countless millions of lives, while Greenpeace struggles to find some evidence that it harms mankind. More worrying, it seems to suggest that precaution should not be based on science but on other criteria. . . Fundamentally, the way that the precautionary principle is often interpreted fails to recognise that every activity man undertakes involves risk of some sort. . . It is impossible to prove that any particular technology will not do harm to the environment as it is always possible to overlook a potential harm, even after the most thorough analysis. (59-60)

While DDT was used in malaria control campaigns and also in agriculture, concerns were raised about the environmental impacts of the pesticide. Perhaps the best-known attack on DDT was Rachel Carson's *Silent Spring*, published in 1962. The book popularised the scare associated with DDT and claimed that it would have devastating impacts on birdlife, particularly birds higher up the food chain. The fears were based on the fact that DDT and its metabolites DDE and DDD accumulate in the body fat of animals. Even though many of the fears surrounding DDT were unfounded, DDT was banned by the US Environmental Protection Agency in 1972. . . . Most developed countries followed the US lead and imposed bans on the chemical for all uses. Some developing countries also imposed a ban on the pesticide for agricultural use and some for all uses. (45-6)

When one considers the malaria control strategies of the past, which included pouring petroleum on breeding sites and the removal of wetlands and marshes, the responsible indoor use of DDT is likely to have had a far lower impact on the environment. The loss of habitat for the numerous species that depend on wetlands for survival is likely to be more environmentally damaging than any of the exaggerated claims of environmental damage that have been levelled against DDT. (61)

**Extract from Richard Tren and Roger Bate, *Malaria and the DDT Story* (London: Institute of Economic Affairs, 2001). The book may be ordered or downloaded from the IEA website at <http://www.iea.org.uk>**



others have annual public sector health budgets of under US\$8 per capita.

Although DDT is produced only in socialist countries for government monopoly use, it is not disputed that DDT is a very much less expensive—and often more effective—insecticide than the alternatives. The evidence includes:

- The Government of India, within its National Anti-Malaria Programme (NAMP), uses a number of insecticides, including DDT, malathion, deltamethrin and others. Because India manufactures insecticides domestically it is able to obtain them at or near the lowest price. Yet India has reported to the World Health Organisation that malathion and the pyrethroid insecticides continue to cost at least three times as much as DDT. Faced with that fact, NAMP concluded it cannot use these more expensive insecticides without leaving tens of millions of Indians unprotected from malaria.
- The Government of South Africa, which recently attempted—and failed—to phase out DDT. Starting in 1995, South Africa switched from DDT to the pyrethroid insecticides. To minimise the cost increase, South Africa economised by spraying only

the highest risk houses with pyrethroid; other houses were not sprayed at all. In just four years, malaria cases rose from about 5,000 (in 1995) to as much as 120,000 (in 1999). Malaria deaths increased as well. Accordingly, the Government of South African decided this year to again use DDT.

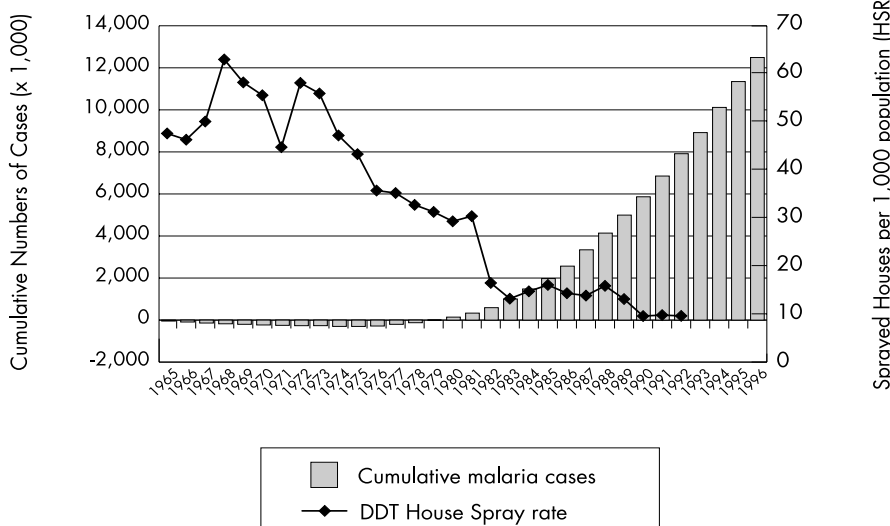
These experiences show that DDT both costs less and often may work better than the pyrethroid insecticides that replace it. So far, no tropical country has changed from DDT to an alternative insecticide while holding its costs equal and avoiding an increase in malaria cases.

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There are also large costs in phasing-out DDT house spraying and instead relying on strategies such as insecticide-treated bed nets or pharmaceutical drugs. Bed nets typically cost about US\$4 each to buy and must be treated with insecticide periodically, and each person in a house needs a bednet. Similarly, pharmaceutical drugs should be given by health care workers at clinics, and the cost of building up a network of skilled personnel and medical facilities to do this in poor tropical countries would often be larger than the cost of maintaining a DDT house spraying programme.

In sum, there is no alternative to DDT that poor countries can switch to without encountering significant new costs which cannot be met out of their current health budgets.

**Figure 1. House spray rates, 1965-92, and cumulative malaria cases, pre- vs post-1979, (Brazil, Colombia, Ecuador, Peru, Venezuela)**



**Conclusion**

DDT use must be allowed to continue until it becomes redundant by technological advances. For developed nations, and their aid agencies and environmental groups, to pressure countries to abandon it will kill thousands and cost millions. It is a mistake that does not need to be made.

**Endnotes (box)**

<sup>1</sup> Greenpeace, 'Analysis . . . Paralysis, Late edition. POPs negotiations: Musing of a common man, the return!', <[http://greenpeace.org/%7Etoxics/html/content\\_popinc\\_dec8.html](http://greenpeace.org/%7Etoxics/html/content_popinc_dec8.html)>

Source: Centre for the New Europe, *The Liberty Briefing* No. 2 (2001), 3-5.