

# Kill Malarial Mosquitoes NOW!

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A Declaration of the Informed and Concerned

**We, the undersigned,** are justifiably concerned, anguished and outraged that:

- Over 500 million human beings suffer from malaria in Africa and around the world annually. This is more people than live in the United States, Canada and Mexico combined.
- Well over a million of these people – mostly children and pregnant women – are killed by malaria each and every year.
- Malaria wreaks an enormous economic toll, incapacitating otherwise productive people, leaving thousands with brain damage, and keeping millions at home to care for the sick, instead of producing goods and services to lift Africa and other regions out of unacceptable, abject poverty.
- The United States, Europe and other advanced economies have failed to use every available means to stop the devastation that malarial mosquitoes inflict upon the world's poorest citizens. They are the same methods we used to eradicate malaria in our countries. Yet, we have mindlessly withheld them from other people for over 30 years – to tragic, almost genocidal effect.
- Almost *none* of the \$200 million that US taxpayers contribute to world malaria control each year is actually spent to kill or repel the deadly mosquitoes that inject parasites into the bloodstreams of their victims. These shortsighted policies fail to recognize that spraying small amounts of DDT on the interior walls of homes can effectively kill or repel malarial mosquitoes – giving long-lasting protection to the families within.
- Amazingly, some in government even oppose using malaria control monies to kill the parasite that malarial mosquitoes transmit from person to person! These individuals would block or limit funding for the purchase of medicines such as artemisinin-based combination therapies (ACTs), which cure malaria and inhibit its spread wherever they are used.
- DDT as yet plays no part in the program announced by President Bush in July 2005, to spend an additional \$1.2 billion on malaria control over the next five years. Without DDT and ACTs, this spending will be needlessly wasted, along with millions of additional lives.

We understand the facts about DDT and its historic opponents, as summarized in the Background and References, below. We now seek humane, heroic action by US leaders to alter the ugly course of human history with regard to malaria.

## **Our objective: To end malaria's worldwide reign of terror**

We want to slash disease and death tolls in Africa and worldwide, by changing the way the US government funds malaria control. We want cost-effective measures that actually kill and repel malarial mosquitoes, eliminate parasites, cure malaria patients – and save lives.

We therefore ask Congress and the President to:

- Ensure that at least **2/3** (two-thirds) of annual Congressional appropriations for malaria control are earmarked for insecticidal and medicinal commodities – with up to half of such monies targeted to the treatment and cure of infected patients.
- Specifically direct such funds to the actual purchase and deployment of: (1) DDT, or any other proven, more cost-effective insecticide/repellent, for Indoor Residual Spraying (IRS) in any given malarial locality; and (2) of ACTs, or other equally effective and durable drugs, for treatment of malaria patients and reduction in transmission rates.
- Require that this **2/3** formula be mirrored in the annual malaria control spending by any agency receiving US malaria control monies – such as US Agency for International Development, World Health Organization, World Bank, UNICEF and Global Fund to Fight AIDS, Malaria and Tuberculosis.
- Direct that this **2/3** proportion will be subject to reduction **ONLY** if replaced by corresponding expenditures for any malaria control measure (such as larvaciding) that has been proven equally or more cost-effective in reducing malaria morbidity and mortality rates in specific localities – as certified, in advance of such expenditure and replacement, by the directors of the US Centers for Disease Control, Uniformed Services University of the Health Sciences or similar independent agency, based on controlled epidemiological studies in the field.

**In full accord with the UN Stockholm Convention** on Persistent Organic Pollutants, this objective contemplates DDT use *only* for indoor residual spraying (which results in zero-to-negligible external environmental residue) – and *not* for aerial or any other form of outdoor application.<sup>1</sup> It does *not* contemplate the use of insecticides, including insecticide-treated mosquito nets, not shown to be *more* cost-effective than indoor residual spraying with DDT for all members of affected populations.

In the absence of empirical evidence to the contrary, we the undersigned regard as inadequate – and therefore morally unacceptable – any policy that permits any sum in excess of one-third of US anti-malaria funding to be expended on contractors, “technical assistance,” conferences, “capacity building, overhead, bed nets or similar measures, rather than the proven insecticidal and medical interventions described above.

Bureaucrats, contractors, academics, insecticide companies, anti-pesticide activists and other self-interested parties have frequently protested that DDT for indoor residual spraying is no panacea – and falsely claimed that alternative methods work equally well in controlling malaria. However, the fact is, *nothing* in the history of man has proven more effective than the combination of insecticides such as DDT and effective medicines like ACTs for saving human lives from the scourge of malaria.

DDT enabled the United States, Europe and most advanced economies to eradicate malaria. It must now be permitted and encouraged to start saving lives in Africa, Asia, Latin America and other parts of the world where malarial mosquitoes continue to kill thousands of innocent children and parents every day. Because:

- Allocation decisions on US appropriations for malaria control must be made by Congress and the White House within weeks;
- The US foreign aid and multilateral aid bureaucracies have proven themselves incompetent and unwilling over many years to make effective commodity purchases and allocation decisions;
- Most of the world, including the World Health Organization, has *endorsed* DDT for indoor residual spraying through the UN Stockholm Convention; and

- Americans and most of the world embrace life, liberty and the pursuit of happiness as fundamental Human Rights – and yet the effect of current malaria policies is to deny those Human Rights to billions of the world’s poorest people;

**Now, therefore,** we the undersigned Coalition of the Informed and Concerned hold that the burden of scientific and moral proof rests with any who would argue that more than one-third of US and world malaria control spending should support measures *other than* DDT for indoor residual spraying and ACTs (or any other proven, more cost-effective interventions) for combating this horrific disease.

If and when the opponents of DDT and ACTs can show and obtain certification as provided above that something else works better to save human lives from malaria, we the undersigned will readily – even eagerly – accede to something less than this *two-thirds* formula.

Until then, however, we will fight furiously for every human life now hanging in the balance, as a function of current, myopic, errant and unconscionable US malaria control policies.

We urge all people of conscience, moral conviction and human decency to join us in ending malaria’s reign of terror in Africa and the developing world. We hereby implore Congress and the President to stop the misguided malaria spending, stop the talking, and finally take real action to:

# Kill Malarial Mosquitoes NOW!

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# Kill Malarial Mosquitoes NOW!

## **Background: The truth about DDT and opposition to it**

The wide-ranging attacks on and near-banning of DDT is arguably history's most devastating embrace of junk science. DDT is one of the single most effective tools for fighting malaria, a disease that *kills over 1 million people annually*. Most of these deaths are among children and pregnant women, and those lucky enough to survive malaria are often left brain-damaged and facing a blighted future.<sup>2</sup>

About *2.2 billion people* live in malarial regions, and over *half a billion people* suffer acutely from the potentially fatal disease every year. Over 70 percent of them live in Africa.<sup>3</sup>

Malaria is not just an unnecessary human tragedy; it is also an economic disaster. The disease imposes a huge economic toll on malarial countries – discouraging foreign investors, incapacitating otherwise productive people, keeping millions at home to care for the sick, instead of producing goods and services, and exacting enormous healthcare costs that reduce budgets needed for other health, social and environmental programs.<sup>4</sup> The World Health Organization (WHO) estimates that malaria may exact an economic cost of more than \$12 billion per year.<sup>5</sup>

On a cost-benefit basis, malaria control ranks among the top priorities for measures to improve the world, according to the Copenhagen Consensus 2004, a panel of world-leading economists sponsored by *The Economist*.<sup>6</sup>

Malaria is transmitted by mosquitoes, which carry deadly or debilitating protozoa from infected to non-infected people. Killing or repelling malarial mosquitoes has the bonus effect of halting other mosquito-borne diseases such as yellow fever and dengue fever. Shortly after the Second World War, DDT was used to eradicate or dramatically reduce malaria in the U.S., Europe, Canada, Australia, Brazil, Sri Lanka, India, and many southern African countries.

In 1971, WHO said DDT is the “major single factor that made the concept of time-limited eradication possible.” It recommended continuing insecticide availability, “particularly DDT.”

Why? Because sprayed once or at most twice a year on mud and thatch huts and cinderblock homes common in Africa and other poor countries, DDT keeps most mosquitoes from entering, irritates those that do so they rarely bite, and kills most that land on the walls.

DDT both repels AND kills mosquitoes. Even mosquitoes resistant to DDT's insect-killer properties are repelled from homes and buildings whose walls have been sprayed with the insecticide, thereby protecting all the people therein.

*No other pesticide – at any price – is as effective, long-lasting, cost-effective and safe as DDT for killing and repelling malarial mosquitoes.* In fact, DDT keeps up to 90 percent of mosquitoes from even entering a home. However, to kill (but generally not repel) DDT-resistant mosquitoes, alternative pesticides like synthetic pyrethroids and carbamates can also be effective.

No anti-malaria vaccine exists today, and there is little prospect of an effective vaccine being commercially available in the next ten years. Until that day, as history has shown, the best way to reduce or eliminate the incidence of malaria is to prevent the disease in the first place, by controlling the *Anopheles* mosquitoes that carry it. The historical strategy is able to be combined with new and extremely effective artemisinin-combination therapy (ACT) medicines, which both cure malaria in afflicted patients, and which interrupt the chain of malaria parasite transmission from an ill person

person, to the mosquito, and to the next uninfected victim. DDT targets the mosquito, and ACTs target the malaria parasite. Used together, they are stunningly effective, as recent studies from Southern Africa especially show.

Many malarial countries have woefully inadequate healthcare and transportation systems. As a result, many of those in need of treatment go without, and many die. If proper malaria controls were in place, fewer people would be infected, and those that are infected would have a better chance to receive effective drugs and treatment.

The US government promotes the use of anti-malarial drugs and insecticide-treated bed nets. These have a place in malaria control. But they cannot and should not replace other interventions, such as indoor spraying with insecticides, which dramatically reduce malaria cases and deaths.

**In fact, indoor residual spraying with DDT reduced malaria cases and deaths by nearly 75 percent in Zambia over a two-year period – and by over 80 percent in South Africa in just one year.<sup>7</sup>**

Having reduced malaria rates so dramatically, South Africa was then able to provide ACT medicines to a much smaller number of people who still became critically ill. In just three years, it slashed malaria rates by an astounding 96 percent.<sup>8</sup> Other countries successfully followed South Africa's lead, and others also want to.

It is therefore critical that the USAID, World Health Organization (WHO), UNICEF, Roll Back Malaria and other agencies help ensure that malaria endemic countries have ready access to DDT. Indeed, according to its own website, "the WHO recommends indoor residual spraying of DDT for vector control."<sup>9</sup> These agencies must ensure that countries can reduce their malaria levels far enough that all who nevertheless get the disease can be treated with ACTs (or other equally effective) therapies that will continue to be in extremely short supply for the foreseeable future.

Insecticide-treated nets certainly help to a limited degree. However, they often get torn. They only protect one person at a time. People often don't use them, because the insecticide irritates their skin – or they forget ... kick them off when it gets too unbearably hot under the net to sleep ... don't have enough for every family member ... have no way to hang them up properly ... or are still doing homework or housework when mosquitoes arrive.

Sleeping under a bed net is nearly impossible during torrid African nights, says Omololu Falobi, a journalist in Nigeria. Use the net anyway, and you get heat rashes all over your face and body. Most villages have no electricity to power fans or air conditioners, and many of the same environmentalists who oppose pesticides also oppose electricity generation on any scale that would power these cooling systems. Even in cities like Lagos, power outages are frequent, rendering fans and AC useless. "Even if you have a generator, says Falobi, you don't want to put it on throughout the night, for fear of carbon monoxide poisoning."

Medicines that actually cure malaria (Artemisinin-based) are in critically short supply. Although some USAID bureaucrats also oppose devoting agency funds to ACT medicines, official agency statements raise its expectation that there will be 55 million pediatric treatments by 2006. But those treatments must treat 500 million critically ill malaria patients worldwide. That means 445 million will not even have a chance to get treated. Indeed, even under the most optimistic scenarios, there will be sufficient supplies of ACT drugs to treat fewer than 1 in 4 patients for at least the next several years. DDT is absolutely critical to preventing malaria in the first place; treatment alone will never work.

Expanding the production of Artemisia is also critical, however, and USAID, pharmaceutical companies and others are working hard to do so. More resources must be devoted to these efforts, too.

In highly endemic areas, people can get 1,000 *infectious* mosquito bites in a single year! Even with a 90% reduction in mosquitoes in the home (via DDT indoor spraying) or outside (through the use of other insecticides), they could still get 100 infectious bites per person per year. It is certain that some people will get malaria even with regular, effective spraying programs. That was and is the experience in South Africa and other countries, and those patients must have access to the very best medicine treatments in our repertoire.

Because they massively or completely eliminate malaria parasites (gametocytes) from the victim's blood, ACTs have another equally vital benefit. They significantly reduce the probability that a malaria-infected person can pass the infection to a mosquito, and in turn to the next person who gets bitten. Indeed, the gametocidal effect of artemisinins may be comparable in magnitude to entomological (insecticidal) effects of DDT. Some research has found that one ACT drug (Coartem) slashed the proportion of patients carrying transmissible parasites to around 1/25 of what it had been when using older malaria medicines, such as SP or chloroquine, which are no longer clinically appropriate. In fact, these obsolete medicines may fail in 50 to 80 percent of the cases.

Recognition of these facts is the principal reason that South Africa was able to go from an 80 percent reduction in malaria disease and death rates, using DDT alone – to a 96 percent reduction over 3 years, using DDT in combination with Coartem.

Drugs designed to prevent (through prophylaxis) the onset of malaria (Chloroquine, Malarone, Doxycycline and others) are likewise inadequate for 2.2 billion people at risk from malaria. In any event, people living in malarial areas cannot take malaria prophylaxis over an extended period of time, because of the expense and the side-effects they will suffer

Only by slashing the number of people getting malaria, can malaria-wracked countries get the best drugs to those who still get sick. To do that, they need insecticides, especially DDT.

DDT and other insecticides helped eradicate malaria in the United States and Europe, saving countless lives. Today, insecticides are still our first line of defense against West Nile virus and other diseases. It is callous and hypocritical for the United States to tell African and other malarial endemic nations that they cannot spray insecticides, when we use aerial and ground spraying every day. Moreover, we spray insecticides directly into the environment, whereas spraying for malaria control only sprays insecticides inside houses.

The USAID once funded very effective indoor residual spraying programs around the world. It can and must revive America's and the world's once-proud anti-malaria programs.

Used by trained specialists in indoor residual spraying programs, almost no DDT gets into the environment. It's safe for humans, too. In its latest review of DDT, the National Institute of Environmental Health Sciences admits it cannot prove that DDT harms human health.

Indeed, about the worst thing opponents can say is that “measurable quantities” of DDT are “present” in human fatty tissue and mother's breast milk, and “could” inhibit lactation or cause low birth weight babies. But these alleged problems are all but irrelevant compared to the risk of losing hundreds of thousands of children to malaria, year after year.

**T**o a large extent, Rachel Carson's 1962 book *Silent Spring* launched the modern environmental movement and inspired the US EPA's 1972 domestic ban of DDT. That US ban has since then expanded into a de facto global ban on its use. Carson's facts, however, were wrong.<sup>10</sup>

Extensive hearings on DDT before an EPA administrative law judge occurred during 1971-1972. The EPA hearing examiner, Judge Edmund Sweeney, concluded that “DDT is not a carcinogenic hazard to man .... DDT is not a mutagenic or teratogenic hazard to man .... The use of DDT under the

regulations involved here does not have a deleterious effect on freshwater fish, estuarine organisms, wild birds or other wildlife.”<sup>11</sup>

Overruling the EPA hearing examiner, EPA Administrator William Ruckelshaus banned DDT in 1972. Ruckelshaus never attended a single hour of the seven months of EPA hearings on DDT. His aides reported that he did not even read the transcript of the EPA hearings on DDT.<sup>12</sup>

How could this have happened? Because banning DDT was a political, not a scientific, decision. And its author was President Richard M. Nixon.

“On February 10, 1970 he announced: ‘we have taken action to phase out the use of DDT and other hard pesticides.’ In December 1970, the administration created the EPA to implement executive environmental policy. As a 1975 study out of Northern Illinois University notes, ‘This is important. Long before the EPA hearings were convened and even before the EPA was created, Ruckelshaus’ boss, President Nixon, had stated that DDT was being phased out. This leaves the hearings themselves superfluous, satisfying only a court requirement.’”<sup>13</sup>

The DDT ban by EPA was followed by a USAID and WHO shift away from killing mosquitoes and toward other methods of malaria control (drug treatments, mosquito nets and more nebulous notions like “capacity building” and “integrated vector management”). However, these methods have not proven even remotely as effective as indoor residual spraying and other pesticide programs.<sup>14</sup>

A now debunked, odiously Malthusian population control logic also supported the de facto DDT ban in Africa and other poor regions. A USAID official reportedly said of those whom malaria would kill as a result, “Rather dead than alive and riotously reproducing.” Others have made similar statements.<sup>15</sup>

Physician-author-medical researcher Michael Crichton has said the de facto ban on DDT to control malaria “has killed more people than Hitler.”<sup>16</sup> This is all the more tragic because, in the nearly half-century since *Silent Spring* was written, no connection between DDT and cancer, birth defects or any other human malady has ever been scientifically demonstrated. The only documented environmental effects of residual DDT are possible reproductive harms to raptors, including thinning of their eggshells, and even these have not been demonstrated conclusively.<sup>17</sup>

DDT junk science drove the world to the brink of imposing a universal ban on DDT via the Stockholm Convention on Persistent Organic Pollutants (POPs). The convention, known as the POPs Treaty, would have made the de facto ban legally binding and permanent. However, conscientious scientists and public health officials rallied to carve out a “DDT exemption” in the treaty. That exemption:

- 1) restricts DDT use and production to disease vector (e.g. mosquito) control only and does not permit the insecticide’s renewed use for agriculture;
- 2) requires that countries using DDT must follow WHO guidelines for disease/vector control;
- 3) requires that countries notify the WHO if they use DDT;
- 4) requires that rich countries pay the “agreed incremental costs” of more expensive alternatives to DDT (this is located elsewhere in the treaty); and
- 5) encourages rich countries to support research and development of alternatives to DDT.

What the treaty does NOT require is equally important.

- 1) It does NOT require that a country notify WHO before it sprays DDT; thus, in an epidemic, a country may spray first and report to the WHO later.

- 2) It does NOT require that a country obtain the WHO's approval at any time.
- 3) It does NOT require that poor countries bear the added cost of alternatives to DDT.
- 4) It does NOT set a deadline by which countries must stop using or producing DDT.
- 5) It does NOT restrict DDT use to malaria control, but allows its use for controlling any vector-borne disease.<sup>18</sup>

And yet, environmental imperialist ideology and inertia inside US-funded aid agencies keep ensuring the deaths of millions each year: USAID spent \$80 million on malaria in 2004, but *not a dime of it actually purchased insecticides* – and only \$4 million may have gone toward promoting or buying insecticide-treated bed nets. Most was spent on conferences, consultants and training programs.<sup>19</sup>

Overall, the world spends about \$400 million a year in connection with malaria, most of it US money. Almost none of it is actually spent on killing and repelling mosquitoes.

Although signed in 2001 by the Bush Administration, the POPS treaty has not yet been ratified by the United States Senate. Ratification, if it occurs at all, should be conditioned on prior legislation tying US aid monies to DDT deployment for killing and repelling malarial mosquitoes.

Even big media have seen the light on DDT. In recent years, the *New York Times*, *Washington Times*, *Newsweek*, *Forbes*, *Wall Street Journal*, *Chicago Sun-Times* and other papers have run editorials strongly advocating the use of DDT to control mosquitoes and reduce malaria. *The New York Times Magazine*, *New Yorker*, *Time*, *Washington Monthly*, *Washington Post*, *Christian Science Monitor* and numerous other periodicals have carried articles and opinion columns advocating expanded DDT use to combat malaria and save lives.

Even some Greenpeace and World Wildlife Fund officials have conceded the life-saving need for DDT. “If alternatives to DDT aren't working, you've got to use it. If there's nothing else and it's going to save lives, we're all for it,” their spokesmen have said.<sup>20</sup>

DDT proponents advocate it primarily for indoor residual spraying on unpainted mud or cinderblock walls, which usually is the most cost-effective way to kill/repel malarial mosquitoes. This is akin to Americans spraying Raid insect killer on the walls of their homes, though DDT application typically would not involve aerosols and would have to occur far less often. With indoor spraying, there is a vanishingly-small risk that DDT will even reach the environment.

DDT opponents, however, downplay or ignore the undeniable disease, disability and death tolls that their anti-DDT policies have wreaked in Africa and other malaria-endemic regions.

They falsely equate indoor residual spraying (IRS) with aerial spraying – which itself involves only hypothetical, unproven risk to birds, and may be cost-effective and appropriate (whatever the insecticide) in swampy areas near population centers.

*They elevate minor hypothetical environmental risks from pesticides over major, very real human risks that those pesticides would reduce or eliminate.*

DDT opponents ignore the fact that Dade County, Florida and numerous other U.S. communities routinely spray insecticides to control mosquitoes and other insects that carry far less lethal diseases, like West Nile virus, or simply prove irksome to residents and tourists. They refuse to acknowledge that, in the wake of Hurricane Katrina, the US government sprayed much of the flooded and devastated areas with insecticides, to halt the spread of insect-borne diseases.

DDT opponents choose birds over little boys and girls, in a false dichotomy that requires the sacrifice of neither. They advocate the development and distribution of vaccines, bed nets and treatment drugs, plus the implementation of sanitation and other programs. But these interventions will likely take

decades to become effective, if they ever do so – and during that time malaria will needlessly slaughter millions more people, who would live if their countries could acquire and deploy DDT and other pesticides now.

We recognize that achieving our objective may require aggressive and public discrediting of these institutional opponents of DDT for IRS – who may, even now, be willing to sacrifice the lives of countless millions of men, women and children in Africa and on other continents, before the altar of junk science, nature worship and callous eco-imperialism. We will not hesitate to expose these organizations or the individuals who set their policies.

Deploying DDT in developing countries is good for the United States. Cutting malaria and other mosquito-borne disease rates: (1) permits strides in education, individual productivity and economic growth in Africa and elsewhere – reducing foreign aid claims on U.S. politicians and taxpayers; (2) eliminates or quells the kinds of misery and non-productivity that often underlie regional unrest and result in requests for US military intervention, and (3) diminishes the ever-present danger of outbreaks, and even pandemics, of exotic, insect-borne diseases in the United States as a result of global travel by infected persons.

Probably no other single action by the United States has the potential for saving more lives, reducing or eliminating more disease, curtailing more human misery, and promoting greater development and prosperity than support for DDT use to control malaria.

Adding this insecticide to the world's disease control arsenal, by compelling USAID and other aid and healthcare agencies to support its use, would arguably be the greatest single humanitarian and human rights action taken in the past quarter century. Its potential for changing world perceptions about the United States is likewise extensive.

By contrast, failing to *Kill or Repel Malarial Mosquitoes NOW* will clearly and inevitably result in the needless sickness of billions of children and parents in Africa and other malaria endemic regions of the world – and the needless deaths of millions. It will be seen by the world as a callous continuation of a DDT ban that Michael Crichton properly called “one of the most disgraceful episodes of the twentieth century history of America.”

It is fraudulent science, incompetence and adamant refusal to face reality – rather than deliberate, calculated murder – that has spawned and perpetuated this slaughter. But the death toll equals or exceeds that of the Holocaust (6 million men, women and children) every five years. Since the ban on DDT was first implemented, the body count has surpassed that of all World War II.

**People of compassion and conscience simply cannot permit the slaughter of innocents to continue.**

**We know we can safely use DDT and other insecticides to save lives through humanitarian and environmentally sound programs.**

**We must muster the moral clarity and political willpower to do so – NOW.**

## References:

- <sup>1</sup> However, insecticides/repellants other than DDT are contemplated herein for outdoor or indoor applications, including rotation with DDT for IRS, if adjudged most cost-effective for malaria control by national health administrators for any given country.
- <sup>2</sup> Testimony of Dr. Anne Peterson, Assistant Administrator for Global Health, USAID, before the U.S. Senate Subcommittee on East Asian and Pacific Affairs, Committee on Foreign Relations, October 6, 2004.
- <sup>3</sup> Murru, Maurizio, "Malaria and DDT: Myths and Facts," *Health Policy and Development*, Vol. 2, No. 2, August 2004.
- <sup>4</sup> *Ibid.* See also Roger Bate and Richard Tren, *Malaria and the DDT Story*, Institute of Economic Affairs (2003), [www.iea.org.uk](http://www.iea.org.uk) and Roger Bate, "The Blind Hydra: USAID policy fails to control malaria," testimony before the United States Senate Committee on Homeland Security and Government Affairs, Subcommittee on Federal Financial Management, Government Information & International Security, May 12, 2005.
- <sup>5</sup> WHO, Fact Sheet on Malaria, [www.who.int](http://www.who.int)
- <sup>6</sup> See *The Wall Street Journal*, June 8, 2005 (editorial): "The brainchild of Danish statistician Bjorn Lomborg, the Consensus is an attempt by leading economists (including three Nobel Prize Laureates) to set priorities for spending on development using traditional cost-benefit analysis. 'We need to know what we should do first,' says Mr. Lomborg. 'Not being willing to prioritize does not make the problem go away: It simply becomes less clear – and, most likely, more expensive to solve in the end.'" In a responsive June 21, 2005 letter to the editor of the same periodical, physician James Horton said that malarial "disease control was crucial to the rise of the [American] South. The lesson from Southern history is that Third World economies improve when we address the burdens of diseases like malaria."
- <sup>7</sup> See Richard Tren and Roger Bate, "South Africa's War on Malaria" *Policy Analysis* No. 513, March 25, 2004, Cato Institute, Washington DC; Gautam Naik, "Novartis drug shows promise against malaria," *Wall Street Journal*, October 3, 2005 ("Malaria infections and deaths plunged 96% in a three-year period," Naik noted, when South Africa combined new Artemisin-based drugs with DDT indoor spraying in KwaZulu-Natal Province, a region the size of Indiana.)
- <sup>8</sup> See Karen Barnes, David Durrheim, et al., "Effect of Artemether-Lumefantrine policy and improved vector control on malaria burden in KwaZulu-Natal, South Africa," *PLoS Medicine* (Public Library of Science), Volume 2, Issue 11, November 2005; <http://medicine.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pmed.0020330>
- <sup>9</sup> See <http://www.who.int/malaria/docs/FAQonDDT.pdf>
- <sup>10</sup> For example, Carson claimed "exposure to DDT, even when doing no observable harm to birds, may seriously affect reproduction. Quail into whose diet DDT was introduced throughout the breeding season survived and even produced normal numbers of fertile eggs. But few of the eggs hatched." In fact, the *Journal of Agriculture and Food Chemistry* study she cited actually determined that, when birds were fed high doses of DDT throughout their breeding season, 80% of the quail eggs hatched (compared with "control" birds that were fed no DDT and hatched 84% of their eggs), and more than 80% of pheasant eggs hatched (compared with "control" birds that hatched only 57% of their eggs). See Edwards, J. Gordon, "DDT: A case study in scientific fraud," *Journal of American Physicians and Surgeons*, Vol. 9, No. 3, Fall 2004; <http://www.jpands.org/vol9no3/edwards.pdf>; Alexander Gourevitch, "Better Living Through Chemistry: DDT could save millions of Africans from dying of malaria – if only environmentalists would let it," *Washington Monthly*, March 2003; Tina Rosenberg, "What the world needs now is DDT," *New York Times Magazine*, April 10, 2004.
- <sup>11</sup> Sweeney, EM. 1972. EPA Hearing Examiner's recommendations and findings concerning DDT hearings, April 25, 1972 (40 CFR 164.32, 113 pages). Summarized in *Barrons* (May 1, 1972), *The Oregonian* (April 26, 1972) and J. Gordon Edwards (*op. cit.*). But in 1970, then Assistant US Attorney General Ruckelshaus said: "DDT is not endangering the public health and has an amazing and exemplary record of safe use. DDT, when properly used at recommended concentrations, does not cause a toxic response in man or other mammals and is not harmful. The carcinogenic claims regarding DDT are unproved speculation."
- <sup>12</sup> *Santa Ana Register*, April 25, 1972 and Edwards.
- <sup>13</sup> Bate, Roger, "The Worst Thing Richard Nixon Ever Did," 4/15/2004 at <http://www.techcentralstation.com/041504I.html>
- <sup>14</sup> See Donald Roberts, Professor of Tropical Medicine, Uniformed Services University of the Health Sciences (Bethesda, MD), testimony before U.S. Senate Subcommittee on East Asian and Pacific Affairs, Committee on Foreign Relations, October 6, 2004.
- <sup>15</sup> Desowitz, R.S., *Malaria Capers*, W.W. Norton Company, 1992. Jacques Cousteau told *Nouvelle Observateur*, "In order to stabilize world populations, we must eliminate 350,000 people a day." Asked whether banning DDT would result in more deaths from disease, Environmental Defense Fund scientist Charles Wurster once said, "People are the cause of all the problems. We need to get rid of some of them, and this is as good a way as any." Club of Rome director Alexander King wrote in *The Discipline of Curiosity*, "My chief quarrel with DDT in hindsight is that it greatly added to the population problem." Sierra Club director Michael McCloskey opined, "By using DDT, we reduce mortality rates in underdeveloped countries, without the consideration of how to support the increase in populations."
- <sup>16</sup> In a 2003 speech to the San Francisco Commonwealth Club, Crichton said: "Banning DDT is one of the most disgraceful episodes in the twentieth century history of America. We knew better, and we did it anyway, and we let people around the world die, and we didn't give a damn."
- <sup>17</sup> Further details on the faulty science behind claims against DDT can be found on CATO Institute adjunct scholar Steven Milloy's website: <http://junkscience.com/ddtfaq.htm>
- <sup>18</sup> Attaran, Amir, Malaria Foundation International website, at <http://www.malaria.org/DDTpage.html> .
- <sup>19</sup> Bate, Roger, "The Blind Hydra," testimony before U.S. Senate Subcommittee on Federal Financial Management, Government Information & International Security, May 12, 2005.
- <sup>20</sup> Kristof, Nicholas, "It's time to spray DDT," *New York Times*, January 8, 2005.