

What's behind the 'DDT comeback'?

The World Health Organisation's recent announcement of support to reintroduce DDT for malaria control has attracted the attention of the world media. **Kristin Schafer** of PAN North America examines the means and motives behind the underlying campaign.

The recent announcement from the World Health Organization (WHO) giving DDT a 'clean bill of health' for malaria control has generated dissension and resignations within the agency and sparked protests from environmental health and development experts around the world.

WHO's controversial malaria programme chief Dr. Arata Kochi spearheaded the 15 September press event promoting widespread use of DDT in Africa. Kochi's announcement overstates WHO's actual policies regarding indoor residual spraying, ignores widely accepted scientific evidence of the human health effects of low-level exposure to DDT, and directly undermines the international Stockholm Convention on Persistent Organic Pollutants (POPs treaty). The POPs treaty – supported by PAN and other NGOs around the world, and now ratified by 133 countries and the European Union – calls for the ultimate elimination of DDT allowing interim use in countries that still need it for malaria control while shifting to safer and more effective alternatives.

The misleading signal sent by WHO has already led to adoption of DDT-based malaria control strategies in several African countries not previously using DDT. It has been used by the European Chemical Industry Council to argue against the substitution principle in European policy debates. And it has been touted as a major victory by advocates on the far right, who have for years been aggressively promoting widespread DDT use in Africa for malaria control. Meanwhile, the controversy within WHO and between international agencies continues. So what is behind the recent push for more widespread use of DDT?

Ironically, the so-called 'DDT comeback' was spurred in part by efforts to target it for an international ban under the POPs treaty¹. Amir Attaran, now a professor at the University of Ottawa, mobilized opposition to its inclusion in the POPs treaty and attacked environmental groups for supporting a global DDT phase-out. During treaty negotiations, the environmental health NGOs (who organized themselves into the International POPs Elimination Network) made clear their recognition of the severity of the malaria crisis in Africa and the need for some short-term use of DDT until safer and more effective alternatives could be put in place. In the end, the POPs treaty targeted DDT for ultimate elimination and brought long overdue attention to the dead-

ly problem of malaria, which had been shamefully neglected by the international community for years.

However, the POPs treaty debate set in motion a campaign to paint environmental groups as racist for promoting the phase out of DDT which was 'saving babies in Africa from malaria'. This campaign has been embraced by a handful of conservative politicians and organizations in the US and is supported by among others Monsanto, the US pesticide company that was one of the original producers of DDT. DDT promoters have mobilized enough political support to pressure the US Agency for International Development to change its policies to include DDT use for malaria control. They may also have influenced the new support for DDT within WHO, and now hope to pressure European policy makers to follow suit.

In addition to the ongoing involvement of Attaran, one of the central US groups driving the DDT promotion effort is the Congress on Racial Equality (CORE). CORE, founded as an advocacy group for African-Americans, played an early leading role in the US civil rights movement. CORE's leaders, father and son Roy and Niger Innis, are known for their controversial stances on racial equality, including Roy's hailing as a 'bold step' the deportation of 50,000 Asians from Uganda by president Idi Amin in the 1970s². CORE's senior policy advisory Paul Driessen has links to several anti-environmental, corporate funded think tanks, including the Atlas Economic Research Foundation, the Committee for a Constructive Tomorrow and Frontiers of Freedom. His 2003 book, *Eco-Imperialism: Green Power, Black Death*, asserts that environmentalists are directly responsible for poverty in developing countries³. In 2005 CORE produced a Monsanto-funded video called 'Voice from Africa' promoting the use of genetically modified crops in Africa⁴.

CORE recently established an office in Uganda, which sponsored and organized a pro-DDT rally in Kampala following the WHO announcement. A CORE employee in Uganda, Fiona Kobusingye-Boyne, then attacked both PAN and Physicians for Social Responsibility (PSR) in an editorial in the African Executive Magazine, saying the two organizations 'use myths, scare tactics and outright lies' about the health impacts of DDT to pressure governments in

Africa not to use the pesticide⁵.

In fact, scientists know much more today about DDT's effects on human health than when its widespread use was banned in the 1970s. One recent study found higher levels of miscarriages among women exposed to DDT, and reproductive disorders associated with DDT are well documented in animal studies^{6,7}. Another recent study found developmental delays among babies and toddlers exposed in the womb⁸. Other studies have linked DDT to reduced breast-milk production, premature delivery and reduced infant birthweights^{9,10}. DDT is classified by US and international authorities as a probable human carcinogen¹¹.

These long term health impacts, however, are not immediately evident – unlike the deadly impacts of malaria. Fortunately many countries have developed safer and more effective ways to control malaria that do not force governments to put families at risk of long term health effects from DDT exposure. Vietnam, for example, reduced malaria deaths by 97% and malaria cases by 59% when they switched in 1991 from trying to eradicate malaria using DDT to a DDT-free malaria control programme involving distribution of drugs and mosquito nets along with widespread health education organized with village leaders¹². A programme in the central region of Kenya is focusing on reducing malaria by working with the rice-growing community to improve water management, use livestock as bait, introduce biological controls and distribute mosquito nets in affected areas¹³. In Mexico and the Philippines, successful national programmes have relied on community-based education, improved sanitation and water controls, better access to health care, treated bed nets and spraying of alternative chemicals^{14,15}.

What countries fighting malaria need is strong support for effective solutions, not increased reliance on DDT. If those who have been so actively promoting DDT want to truly serve the interests of families and communities in Africa, they will put their resources and energy into addressing the poverty that breeds malaria and promoting safe and effective malaria control solutions. While these approaches may not be as dramatic as widespread house-spraying with DDT, they can be significantly more effective and sustainable and do not further jeopardize communities already facing health risks from malaria.

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For more case studies and additional information on malaria control, see PAN North America's DDT and Malaria Resource Center at <http://www.panna.org/ddt>.

1. The treaty targets chemicals that meet certain criteria for toxicity, persistence, bioaccumulation and global transport. The other chemicals on the initial list of 12 include mirex, toxaphene, chlordane, heptachlor, dieldrin, endrin, aldrin,

- hexachlorobenzene, dioxins, furans and PCBs.
2. CORE profile at <http://www.lobbywatch.org>
 3. <http://www.eco-imperialism.com>
 4. <http://www.coreonline.org/newindex.html>
 5. 'DDT' Hippocratic Oath Turned Hippocritical?, *African Executive Magazine*, October, 2006 at www.africanexecutive.com/modules/magazine/articles.php?article=985&magazine=91
 6. Venners SA, Korrick S, Xu X, Chen C, Guang W, Huang A, Altshul L, Perry M, Fu L, and Wang X, Preconception Serum DDT and Pregnancy Loss: A Prospective Study Using a Biomarker of Pregnancy, *American Journal of Epidemiology*, 162(8):709-716, 2005.
 7. Toxicological Profile for DDT, DDE, DDD: Draft for Public Comment, Atlanta, GA: Agency for Toxic Substances and Disease Registry, September 2000, <http://atsdr1.atsdr.cdc.gov/toxprofi/les/tp35.html>; and Orris P, Charsy LK, Perry K and Asbury J, 2000. Persistent Organic Pollutants and Human Health, World Federation of Public Health Associations, USA.
 8. Eskenazi B, Marks AR, Bradman A, Fenster L, Johnson C, Barr DB, and Jewell NP, In Utero Exposure to Dichlorodiphenyltrichloroethane (DDT) and Dichlorodiphenyldichloroethylene (DDE) and Neurodevelopment Among Young Mexican American Children, *Pediatrics* 118(1):233-241, July 2006.
 9. Gladen BC and Rogan WJ, DDE and Shortened Duration of Lactation in a Northern Mexican Town, *American Journal of Public Health* 85:504-08, 1995.
 10. Longnecker MP, Klebanoff MA, Zhou H, Brock JW, Association between maternal serum concentration of the DDT metabolite DDE and preterm and small-for-gestational-age babies at birth, *The Lancet*, 358:110-114, 2001; and Rogan W and Chen A, Health Risks and Benefits of bi (4-chlorophenyl) 1,1,1-trichloroethane (DDT). *Lancet* 366:763-73, 2005.
 11. DDT is classified as 'reasonably anticipated to be a human carcinogen' Ninth Report on Carcinogens (U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program, January 2001) available at <http://ehp.niehs.nih.gov/roc/ninth/rahc/ddt.pdf>; DDT falls into Group 2B ('possibly carcinogenic to humans') under the IARC Carcinogenicity Classification scheme in Overall Evaluations of Carcinogenicity to Humans, compiled from IARC Monographs Vol. 1-79, available at <http://monographs.iarc.fr/ENG/Classification/crthall.pdf>
 12. World Health Organization. A Story to be Shared: The Successful Fight Against Malaria in Vietnam, 2000, available at <http://www.afonets.org/files/malaria.pdf>
 13. International Development Research Center. Malaria and Agriculture in Kenya: A New Perspective with Links between Health and Ecosystems. Case Study: Health and Ecosystem Approach. 2003, at http://www.idrc.ca/uploads/user-S/10530071320Ecohealth_2_Kenya_e.pdf
 14. González BF, The Phasing Out of DDT in Mexico, *Pesticide Safety News*, 2001 Milan, Italy, International Center for Pesticide Safety, 5(2):5, 2001; and Situación actual de la malaria y uso del DDT in Mexico. Centro Nacional de Salud Ambiental. Centro de Vigilancia Epidemiológica. Secretaría de Salud. Diciembre 2000; and Participación ciudadana y alternativas al DDT para el control del la malaria. Memorias. RAPAM. World Wildlife Fund. Julio 1998. Texcoco, México.
 15. Matteson PC, The Philippine National Malaria Control Program, in Matteson PC, ed. Disease Vector Management for Public Health and Conservation (Washington, DC: World Wildlife Fund, 1998).

Malaria Control Case Studies

Learning from successful malaria control programs is critical to the efforts to combat malaria in Africa. The effectiveness of approaches will vary from country to country, given differences in environment, vectors and their resistance, infrastructure and national capacity. It must be recognized that malaria is fundamentally a disease of poverty, with poor rural communities accounting for the vast majority of cases around the world. A malaria expert from Vietnam says the most critical lesson learned from their successful program is the importance of 'tenacity, ingenuity, creativity and courage.' He goes on to explain that 'there is no one measure that will bring about success; it is a whole host of measures ... that are needed.' In each of the success stories outlined below, key elements include a strong national program with high level support, a dedicated team, and a national health infrastructure that reaches the community level.

Vietnam

After initial success with malaria control in the 1960s, Vietnam experienced a resurgence of malaria from the late 1970s until 1991, when malaria peaked at over a million cases and 5,000 deaths. Responding to this deadly outbreak, the government of Vietnam shifted away from their DDT-based malaria eradication strategy to a malaria control approach that allocated significantly more funds to the program, distributed drugs and free or subsidized mosquito nets in the neediest areas, carried out twice-yearly home insecticide spraying with pyrethroid insecticides, and provided intensive health education. Health education efforts involved village leaders, the Women's Union cadres and commune health staff, as well as mobilization by local trainers of communities in high risk malaria areas. By 1997, this integrated, community-based approach reduced malaria deaths by 97% (from 5,000 to 190) and malaria cases by 59% (from over 1 million to 348,500; 1,350 of these severe).

Mexico

Mexico's successful national malaria control program includes a combination of non-chemical and chemical control measures. Currently, Mexico uses an integrated vector and malaria management approach that includes: a) epidemiological surveillance that allows early detection of the malaria cases and prompt medical treatment, b) community participation in the notification of the cases and in the cleaning of the streams where the mosquito eggs are; and c) chemical control with pyrethroids. Specific chemical controls include the pesticide deltamethrin indoors, outdoor spraying of permethrin, and use of a low volume yet effective spray technology for application of these pesticides. DDT has not been used in Mexico since 2000.

India

India, which spends one-third of its national health budget on malaria control, is an important case study on alternative approaches to malaria control. In 1997, the World Bank approved \$164 million for the Malaria Control Project in India to promote alternatives to indoor spraying of DDT. Alternatives include selective vector control using targeted spraying, non-insecticide methods such as larvae-eating fish and biological larvicides, more environmentally friendly pesticides, medicated mosquito nets and institutional strengthening. Biological larvicides and polystyrene beads (used to kill mosquito larva and pupa) have proven highly effective. In the Hassan district in Karnataka and in Maharashtra bioenvironmental methods have reported up to a 70% reduction in malaria cases. The success of these alternative approaches is critical in a country where the rural mosquito vector that transmits 65% of malaria is resistant to DDT and at least two other pesticides.

For more case studies and additional information on malaria control, see PAN North America's DDT and Malaria Resource Center at www.panna.org/ddt.

1. World Health Organization. A Story to be Shared: The Successful Fight Against Malaria in Vietnam, 2000, <http://www.afonets.org/files/malaria.pdf>, p14.
2. *Ibid.*
3. González FB, The Phasing Out of DDT in Mexico, *Pesticide Safety News*, 2001 Milan, Italy, International Center for Pesticide Safety 5(2):5, 2001; and Situación actual de la malaria y uso del DDT in Mexico. Centro Nacional de Salud Ambiental. Centro de Vigilancia Epidemiológica. Secretaría de Salud. Diciembre 2000; and Participación ciudadana y alternativas al DDT para el control del la malaria. Memorias. RAPAM. World Wildlife Fund. Julio 1998. Texcoco, México.
4. Project Appraisal Document on a Proposed Credit in the Amount of SDR 119.2 Million to India for a Malaria Control Project. May 15, 1997. The World Bank, Population and Human Resources Operations Division, Country Department II, South Asia Region Report No 16571 - IN.
5. Sharma VP and Sharma RC, Cost Effectiveness of Bioenvironmental Control of Malaria in Kheda District of Gujarat, *Indian Journal of Malariology*, 23(2):141-145, 1986; and Sharma VP Laboratory experiments on the effectiveness of Expanded polystyrene beads in mosquito control, *Indian Journal of Malariology*, 21:115-118, 1984.
6. Agarwal R, No Future in DDT: A Case Study of India, *Pesticide Safety News*, 2001 (Italy).