

Pesticide Action Network (PAN) is a network of over 600 participating nongovernmental organizations, institutions and individuals in over 90 countries working to replace the use of hazardous pesticides with ecologically sound alternatives. Its projects and campaigns are coordinated by five autonomous Regional Centers.

1. The problem

Over the last 50 years the increasing global use of toxic synthetic pesticides has seriously affected human health, environmental health and agricultural sustainability. Pesticide use is continuing to increase, especially in developing countries.

Accurate statistics on health effects of pesticides are not available, but estimates range from one million to 41 million people affected every year. In 1990 the World Health Organization estimated three million severe pesticide poisonings every year, of which one million were non-intentional.¹ Such figures reflect only the most severe cases, and significantly underestimate unintentional pesticide poisonings because they are based primarily on hospital registries. Most rural poor have no access to hospitals, and doctors and healthcare workers often fail to recognize and report poisoning cases. In Central America the under-reporting rate has been documented as 98%.² Moreover, most estimates exclude chronic poisonings and pesticide-related disease.

Estimates based on direct observation of agricultural workers are significantly higher: Surveys provide estimates of acute health effects ranging from 2% to 10% of workers affected, and observations yield estimates ranging from 9% to 66%.³ Approximately 1.2 billion people are employed in agriculture as self-employed farmers, unpaid family workers and hired workers.⁴ The International Labor Organization puts the number of "waged" or hired workers at 450 million. Such figures on acute health effects do not include chronic effects, nor do they include those poisoned in non-agricultural workplaces and the home. Pesticides cause 14% of all known occupational injuries in agriculture and 10% of all fatal injuries.⁵

Acute health effects range from skin disorders to death, and include respiratory, gastrointestinal, circulatory, and neurological effects.⁺ Chronic health effects include cancer, reproductive problems, birth defects, developmental and behavioral impacts, and effects on the immune, endocrine and neurological systems.* All humans now carry a body burden of persistent pesticides, many of which are linked to chronic health effects.⁶

People are exposed in their work places and homes, through direct skin contact and through air, food and drinking water contamination. Women tend to be more vulnerable than men to the effects of pesticides because of greater dermal absorption and more body fat, and are additionally affected through impacts on reproduction.⁷ Children are often at greater risk from exposure than adults because of their lower body weight and developmental impacts.^{8, 9, 10,}

¹ *Public Health Impact of Pesticides Used in Agriculture, WHO in collaboration with UN Environment Programme, WHO, Geneva, 1990.*

² Murray D, Wesseling C, Keifer M, Corriols M, Henao S. Surveillance of pesticide-related illness in the developing world: putting the data to work. *J of Int Occ Environ Health*. 2002; 8: 243-248.

³ Jeyaratnam, J, Lun KC, Phoon WO. Survey of acute pesticide poisoning among agricultural workers in four Asian countries. *Bull WHO*. 1987; 65: 525-527. / Condara G, et al. Pesticide poisonings among agricultural workers in Bolivia. In: *Impact of pesticide Use on Health in Developing Countries, Proceedings of a symposium held in Ottawa, ON, Canada, September 17-20, 1990.* / International Development Research Centre, Ottawa, ON, Canada, 1993: 76-84. / Kishi M, Hirschorn N, Djadjadisastra M, Satterlee L, Strowman S, Dilts R. Relationship of pesticide spraying to signs and symptoms in Indonesian farmers. *Scand J Work Environ Health*. 1995; 21: 124-33. / Murphy HH, Sanusi A, Dilts R, Djadjadisastra M, Hirschorn N, Yuliatingsih S. Health effects of pesticide use among Indonesian women farmers: Part I: Exposure and acute health effects. *J Agromedicine*. 1999;6 (3): 61-85.

⁴ International Labor Organization in *Global Farm Worker Issues*, Rural Migration News Vol. 10 No. 4, October 2003.

⁵ *International Labour Conference, 88th Session 2000, Report VI (1), Safety and health in agriculture, ILO, Geneva, 1999.*

⁶ Schafer KS, Reeves M, Spitzer S, Kegley SE, *Chemical Trespass, Pesticides in Our Bodies and Corporate Accountability*, Pesticide Action Network North America, May 2004.

⁷ Steingraber, S, *Having Faith: an ecologist's journey to motherhood*, Perseus Publishing 2001.

⁸ *Childhood Pesticide Poisoning – Information for Advocacy and Action*, UNEP Chemicals, May 2004.

¹¹ Although only 25% of global pesticide use occurs in developing countries, 99% of acute poisoning deaths occur in those countries.¹²

Pesticides persist in the environment and many are dispersed globally as a result of drift, volatilization from soil and vaporization.¹³ They have caused widespread contamination of soil, surface and ground waters, marine and estuarine sediment's, fog, rain, polar snow, mammals¹⁴ and even the bark of trees.¹⁵

Certain persistent pesticides accumulate in animal tissue and concentrate at the top of the food chain. They are implicated in mass die-offs of marine mammals¹⁶ and of many bird species.^{17, 18} As a result of endocrine disruption, they are responsible for serious population losses and feminization of male amphibians¹⁹ and alligators.^{20, 21} Some of the halogenated pesticides, particularly the widely-used methyl bromide, contribute to destruction of the earth's protective ozone layer.

This situation has come about because pesticides are said to be necessary to feed the world's population. In reality pesticides destabilize agricultural systems by reducing biodiversity and ecological pest control processes. Modern intensive agriculture led to the loss of 75% of the genetic resources for food and farming in the 20th century.²² Pesticides cause the decline of pollinators, a crucial eco-system service for plants,²³ and also assist the development of new pest species through destruction of natural predators. Resistance to pesticides by unwanted organisms is escalating. In the 30 years from 1970 to 2000, over 250 weeds became resistant to herbicides.²⁴ By the year 2000, 540 species of insects were resistant to more than one insecticide,²⁵ and the number multiplies annually.²⁶ While studies indicate that organic systems compare favorably in terms of yields and economics with conventional agriculture,²⁷ there is insufficient investment in sustainable agro-ecological strategies for the future.

Dependence on pesticides is driven by global agribusiness, which developed, and aggressively promotes, perpetuates and advances a chemical-based paradigm to food production and pest management in non-agricultural settings. Pesticides are a crutch for the globalized industrial agricultural system, which undermines food security and food sovereignty, contributes to rural poverty, destabilizes communities, and undermines the sustainability of food and fiber production the world over.²⁸ These impacts—extended especially to developing countries through technology

⁹ Guillelte EA, Meza MM, Aquilar MG, Soto AD and Garcia IE, An anthropological approach to the evaluation of preschool children exposed to pesticides in Mexico, Environmental Health Perspectives, 1998, Vol 106, No 6, 347-354.

¹⁰ Kuruganti K, Arrested development: a study on the human health impacts of pesticides, Greenpeace India, 2004, 89pp.

¹¹ Natural Resources Defense Council, Intolerable Risk: Pesticides in Our Children's Food. NRDC, Washington, 1989.

¹² Public Health Impact of Pesticides Used in Agriculture, WHO in collaboration with UN Environment Programme, WHO, Geneva, 1990.

¹³ Kurtz, DA (Ed), Long range transport of pesticides, Lewis Publishers Inc, Michigan, US, 1990.

¹⁴ Killing Them Softly: Health effects in Arctic wildlife linked to chemical exposures, WWF International Arctic Programme and WWF-DetoX, June 2006

¹⁵ Simonich, SL and RA Hites. Global distribution of persistent organochlorine compounds. Science 269:1851-1854, 1995.

¹⁶ Colborn T, Dumanoski D, Myers JP, 1996. Our stolen future: are we threatening our fertility, intelligence, and survival?—a scientific detective story. Boston (MA): Little, Brown.

¹⁷ Goldstein MI, Lacher TE, Zaccagnini ME, Parker ML, Hooper MJ, Monitoring and Assessment of Swainson's Hawks in Argentina Following Restrictions on Monocrotophos Use, 1996–97 Ecotoxicology, 8:3-215-224(10), June 1999.

¹⁸ Joint Nature Conservation Campbell LH, Cooke AS, eds, The indirect effects of pesticides on birds Joint Nature Conservation Committee, Peterborough UK, 1997.

¹⁹ Hayes, T, From silent spring to silent night: endocrine disruption, amphibian declines and environmental justice, Pesticides News 70, December 2005.

²⁰ Colborn T, Dumanoski D, Myers JP, Our Stolen Future: How we are threatening our fertility, intelligence and survival, Little Brown and Company, London 1996.

²¹ Crain AD, Guillelte Jr LJ, Rooney AA and Pickford DB, Alterations in steroid genesis in alligators (*Alligator mississippiensis*) exposed naturally and experimentally to environmental contaminants, Environmental Health Perspectives, 1997, 105:5, 528-533.

²² FAO, State of the World Report on Plant Genetic Resources, 1995.

²³ Millennium Ecosystem Assessment. Ecosystems and Human Well-being: Biodiversity Synthesis. World Resources Institute, Washington, DC, 2005

²⁴ Heap, I, www.weedscience.com

²⁵ Mota-Sanchez D, Bills PS, Whalon ME. 2003. Arthropod resistance to pesticides: status and overview. In: Wheeler WB (ed), Pesticides in Agriculture and the Environment. Marcel Dekker Inc, New York.

²⁶ Benbrook CM, et al, Pest Management at the Crossroads, Consumer's Union, Yonkers NY, 1996.

²⁷ Pimentel, D, Organics outperform conventional in long running trial, Pesticides News 71, March 2006.

²⁸ For more about industrial agricultural production and it's impacts, see Skip Spitzer, "Industrial agriculture and corporate power," *Global Pesticide Campaigner* (Volume 13, Number 2), August 2003, and Skip Spitzer, "The WTO and Pesticide Reform," *Global Pesticide Campaigner* (Volume 10, Number 1), April 2000.

(e.g. the “Green Revolution” and genetically engineered crops), trade and foreign investment, and political influences such as structural adjustment—constitute an immense ecological and social burden on the countries and peoples of the South.

2. The solution

PAN believes that:

- Pesticide use poses grave consequences for human health, the environment and livelihoods;
- Pesticide use is expanding worldwide;
- Economically viable alternatives to pesticides exist and pesticide-based food systems are not needed to feed the world’s population;
- Pesticides are an integral part of a globalizing order in which powerful corporations are able to control how food is produced and influence policy at a local, national and international level;
- Present and future generations have an inviolable right to safe food, safe living and working conditions, and a safe environment; and that
- Food sovereignty and popular movement building are essential elements of eliminating pesticide use.

Pesticide Action Network has worked for the elimination of hazardous pesticides, and through its Dirty Dozen campaign contributed to the global banning of certain pesticides, and national bans and restrictions on many others. PAN is working to achieve:

Global application of the Precautionary Principle, including the right of popular participation in decision-making regarding chemical regulation, in national and international regulatory mechanisms.

Reduction, with the view to elimination, of hazardous pesticides, in particular a ban on the development, commercialization and use of the most acutely toxic pesticides (including WHO Class Ia and Ib), those that cause chronic health effects, and those that are extremely hazardous under conditions of use in the South.

Mobilization of public resources for the recognition, further development and use of sustainable alternatives to pesticide use, and the promotion of ecologically based, biodiversity intensive agriculture instead of industrial, chemically intensive agriculture.

Limiting the power of corporate influence on agricultural research and development, regulatory authorities, political systems and public institutions.

Achieving people’s food sovereignty by promoting the right to determine food and agricultural policies, which prioritize benefits to small-scale producers, rural economies and communities; worker safety and the right to organize; and access to safe, culturally appropriate food.²⁹

²⁹ See “Primer and Convention on People’s Food Sovereignty,” available at [http://www.panap.net/48.0.html?&no_cache=1&tx_ttnews\[tt_news\]=58&tx_ttnews\[backPid\]=67&cHash=7fa63de799](http://www.panap.net/48.0.html?&no_cache=1&tx_ttnews[tt_news]=58&tx_ttnews[backPid]=67&cHash=7fa63de799).

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