Pesticides and Human Rights

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Many nations, including those in developing countries, whose workers are the most susceptible to exploitation, have in place statutes and regulations to protect the rights to life, health, and livelihoods of their people. Some of these efforts to protect human rights are detailed, and specific instances in which the protections they were intended to offer have been ineffective are described. The authors argue for adding strength to States’ legislation to truly protect human rights. Key words: human rights; legislation; developing countries.

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Pesticide poisoning is a daily hazard for the majority of the world’s rural population. It affects health, environment, and livelihoods, while poverty drains the ability of those affected to take action. In developing countries, where pesticide use is growing, some of the most hazardous chemicals are widely used to control insects, rodents, weeds, diseases and other pests even though the conditions of use would be unacceptable in industrial countries. Pesticide exposures occur during mixing, from leaking equipment or inhaling fumes while spraying, and from saturated work clothes. General agricultural workers and rural communities are affected by spray drift, when entering or working in fields after spraying, by washing work clothes, and through home pesticide storage, use of pesticide containers for food or water storage, polluted drinking water, or proximity to obsolete pesticide dumps.

Many agricultural systems depend on chemical pesticides for higher yields. However, poor practices and lack of training can lead to unnecessary use and resistance of insect pests. Policymakers and advisers frequently overestimate the benefits of pesticides while underestimating adverse effects. The hazardous conditions of use among poor women and men farmers and agricultural workers in developing countries leave communities vulnerable to ill health, environmental pollution, and debt.

Under many circumstances the impacts of pesticides infringe basic human rights. Corporations marketing pesticides, plantations, and commodity companies exercise a significant influence over the conditions of agricultural production. Vulnerable communities have a right to expect their own states, states exporting hazardous chemicals, pesticide producers, and corporations directly benefiting from hazardous production to exercise a duty of care and protect them from health and environmental harm. International and domestic human rights instruments impose numerous obligations, particularly on states, to protect health, life, and the environment under such circumstances.

AGRICULTURE, PESTICIDES, AND POVERTY

The vast majority of pesticide poisonings occur in developing countries. These countries account for less than 30% of global pesticide consumption. There are very real difficulties in assessing the precise numbers affected. Most of the rural poor would not seek, or have access to, medical treatment, and records are at best partial. The World Health Organization (WHO) has indicated that 20,000 women, men, and children die of accidental pesticide poisoning each year, three million are poisoned, and nearly three fourths of a million new people each year will suffer from chronic effects of exposure. Targeted studies in specific regions suggest the numbers are far higher. In Panama, for example, official figures in 1995 would need to be multiplied over 1,720 times to reach the estimate by the Social Security Institute of over 9,000 poisonings. Brazil has estimated pesticides cause 5,000 deaths per year. In some countries pesticides account for as much as 14% of all occupational injuries in the agricultural sector and 10% of all fatal injuries.

The Rights of Vulnerable Communities

The populations affected are largely poor and disadvantaged, unable to take essential or even adequate precautions to protect against pesticide hazards (see Box A). Poverty in developing countries is greater in rural than in urban areas, and the gap is widening. Of the 1.2 billion people surviving on under $1 a day, 75% live and work in rural areas in developing countries. Almost half the world’s workforce remains involved in agricultural production, with the greatest concentration in developing countries: 63% in Africa, 62% in Asia, 25% in Latin America. Pesticide use in agriculture is now widespread even in remote areas, including parts of Africa believed to lack access to chemicals.
A characteristic of poverty is lack of influence over policy and decision makers, and lack of access to justice when harm occurs. Rural populations generally have less political leverage than the more visible poor in urban areas, emphasizing the importance of government’s taking a rights-based approach when assessing agricultural and development policies.

Rural poverty with pesticide exposure is an issue of women’s and children’s rights. Women in developing countries produce between 60 and 80% of food,7 and bear an immense workload, with additional responsibilities for child care, household tasks, and food preparation. Women account for 43% of the total workforce in agriculture.8 As a result of AIDS and migration (which draws more men than women to cities) the number of women heads of household in rural areas is increasing rapidly, and the proportion has reached 31% in sub-Saharan Africa, 17% in Latin America and the Caribbean, and 14% in Asia. Income in women-headed households is lower than in those headed by men. Policy makers and trainers often ignore the contribution of women farmers. Only 5% of extension services have been addressed to women, and only 15% of the world’s extension agents are women.8 The exposure of women to pesticides is often grossly underestimated.

The vast majority (70%) of the world’s working children are engaged in the agricultural sector. A study of cocoa production in West Africa found that the work of over 153,000 children aged under 14 in Côte d’Ivoire, Cameroon, and Nigeria includes spraying pesticides.9 In Ecuador, children aged between eight and 13 work on banana plantations for 12 hours a day.10 Roughly
90% work while toxic fungicides are aerially sprayed, and in the packing plants children apply fungicides to bananas being prepared for shipment. In the United States, nearly 800,000 children work in agriculture, and young migrant workers are routinely exposed to dangerous pesticides in fields wet with poison. In Egypt over 1.5 million girls and boys working as agricultural laborers work up to 12 hours a day, six days a week. Children are collected from the roadside and transported to farms where pesticide exposures are common, from working in fields during spraying or returning to work before a safe re-entry period.

Health and Environmental Rights

The rural poor tend to be crucially dependent on the environment. A polluted or degraded environment can have disastrous consequences, while conversely a productive and safe environment can improve the quality of life and the asset base of a rural community. The International Code of Conduct on the Distribution and Use of Pesticides (Code of Conduct), negotiated by governments through the Food and Agriculture Organization of the United Nations (FAO), sets guidelines to safeguard against health and environmental hazards.

In industrialized countries, a pesticide worker must be trained, hold a licence, and have access to personal protective equipment, washing facilities and medical care. None of these safeguards is possible for agricultural workers or poor farmers in developing countries: information and training are generally nonexistent. A core recommendation in the revised 2001 Code of Conduct is that pesticides classified by the WHO as extremely (Ia) and highly (Ib) toxic should not be sold in developing countries. Many of the transnational corporations producing pesticides and members of the industry association CropLife International have indicated that they will stop sales of Ia and Ib pesticides, but have not yet done so.

In addition to poisonings and ill health resulting from exposures to these acutely toxic pesticides, governments or international agencies suspect that at least 49 pesticides, particularly the persistent organochlorines (termed persistent organic pollutants or POPs), alter human endocrine systems at very low doses, leading to reproductive problems or birth defects. Populations in many countries face problems from the legacy of vast stockpiles of obsolete pesticides—an estimated 50,000 tonnes in sub-Saharan Africa, and possibly twice this amount in Eastern Europe. Unsafe pesticide dumps in rural and urban areas are poisoning water supplies, contaminating soil, and, in the case of POPs (an estimated 30% of Africa’s stockpiles), polluting the global environment.

There is evidence that the acutely toxic organophosphate class of pesticide can also exacerbate the breakdown of the body’s immune system, signalling global catastrophe as AIDS sweeps rural areas. In the 25 most-affected African countries, AIDS has killed seven million agricultural workers since 1985, and could kill 16 million more within the next 20 years. Organophosphate pesticides are commonly and routinely used in rural Africa—being comparatively cheap and used against a wide range of insect pests. United Nations bodies have recommended prohibition of the use of immuno-suppressing pesticides by smallholder farmers in AIDS-affected areas.

Income and Livelihood Rights

Policymakers encourage pesticide use on the assumption of improved yields from reduced pests, and frequently fail to assess the potential adverse effects. Poor farmers will buy as cheaply as possible, and the products they use are often older chemicals. These may be more hazardous, or they may be ineffective. The FAO and the WHO estimate that 30% of products used in Africa are of poor quality or adulterated.

The external costs are generally disregarded, and loss of work time or low productivity from ill health as well as the impact of loss of family income and support from death are uncalculated. An estimate in Brazil suggests the annual cost to the country of treatment and lost work from pesticide poisoning is US$540 million. Poor pesticide use practices lead to problems that reduce yields over a number of years, particularly insect pest resistance and loss of beneficials. At least 520 species of insects and mites, 150 plant diseases, and 113 weeds have become resistant to pesticides meant to control them. This can lead to dependence, and a treadmill effect where farmers pay spiralling costs for products that are no longer effective.

Pesticides are frequently promoted without consideration of more appropriate strategies of improving yield and income for the poor. Evidence from farmer field schools, where farmers are trained to use effective integrated pest management (IPM) strategies, demonstrates that ecological training will dramatically reduce—sometimes eliminate—pesticide use, while maintaining yields and improving income. Training in knowledge-based strategies and local, low-cost inputs can improve economic well-being and self-reliance, and increase confidence to demand appropriate agricultural research and services.

HUMAN RIGHTS OBLIGATIONS

Human rights obligations emanate from various instruments and practices, ranging from the global to the regional to the domestic. In general, the obligations are imposed on states, although there is increasing demand and justification for corporations, particularly multinational enterprises, to abide by human rights standards in their practices.
International Measures

The global human rights treaty most relevant to the issue of hazardous pesticide use is the International Covenant on Economic, Social and Cultural Rights 1966 (ICESCR), imposing state obligations to ensure safe and healthy working conditions; protect children from hazardous working conditions and exploitation; and take steps to improve health and living conditions. State parties must take concrete steps to achieve the realization of the rights therein and must fully justify any deliberately retrogressive measures.22

Significantly, state parties to the ICESCR undertake to take steps, individually “and through international assistance and co-operation, especially economic and technical” to achieve the full realization of the rights.23

As well as undertaking to regulate their own behavior, state parties are obliged to protect the rights from abuse by third parties. This would include imposing an effective pesticide regulatory regime that prohibits highly hazardous products or constituents from being manufactured or imported into the country, and ensuring adequate health and safety training in pesticide use in the workplace and wider environment. The Rotterdam Convention on Prior Informed Consent (PIC) for certain hazardous chemicals in international trade now provides governments with better information to take action, as well as the formal means to stop imports of pesticides on a PIC list. In the case of a small number of highly persistent pesticides, governments have agreed at the Stockholm Convention on POPs to phase out their production and use. The Basle Convention provides safeguards against the dumping of toxic waste in developing countries.

The International Covenant on Civil and Political Rights 1966 (ICCPR) is also relevant to the issue of hazardous pesticide use. The UN Human Rights Committee (HRC), the body supervising implementation of the ICCPR, has commented that the right to life (Article 6) should not be narrowly interpreted and that state parties should take all possible measures to reduce infant mortality and increase life expectancy, in fulfillment of their obligations with respect to this right.24 Judges in the European Court of Human Rights (ECtHR) have stated that the right to life might be breached where the state had substantial grounds for believing there was a real risk of danger to the health and physical security of people, and it had not taken adequate measures to guard against that risk.25

Judgment Such reasoning could similarly be applied to the right to life under the ICCPR.

Article 17 of ICCPR, which prohibits arbitrary or unlawful interference with privacy, family, and the home, is similarly worded to Article 8 of the European Convention on Human Rights and Fundamental Freedoms (ECHR). The ECtHR has observed that “severe environmental pollution may affect individuals’ well-being and prevent them from enjoying their homes in such a way as to affect their private and family life adversely,” even without seriously endangering their health. The ECtHR has found breaches of Article 8 in respect of a family living next to a waste treatment plant emitting pungent hydrogen sulfide fumes26; and of individuals living near a fertilizer/chemical factory who had not been provided with requisite information regarding the hazards concerned and safety measures taken.25 Again, such reasoning is clearly applicable to the interpretation of Article 17 ICCPR in the context of hazardous pesticide use, particularly in terms of those affected by any ensuing environmental pollution.

Regional instruments, such as the American Convention on Human Rights (AmCHR) and the African Charter on Human and People’s Rights (AfCHPR), contain provisions similar to the global ones, with some idiosyncracies. For instance, the right to life in the AmCHR is generally protected from the moment of conception, arguably imposing a positive duty on the state to protect the fetus from external harm, such as pollution. The AfCHPR, as well as bestowing rights, also imposes duties on individuals.

Within the sectoral international instruments, highly relevant provisions to the issue of hazardous pesticide use are found in the UN Convention on the Rights of the Child, the Convention on the Elimination of Discrimination Against Women and a plethora of International Labor Organization (ILO) conventions, particularly regarding protection from hazardous working conditions.

In general, state parties to these international treaties undertake obligations to those within their jurisdictions. However, the HRC has stated that it would be unconscionable to permit a state party to perpetrate on the territory of another state violations of the ICCPR that it could not perpetrate on its own.28 It has now been widely recognized that a state may breach its human rights obligations by failing to protect such rights from abuse by others, such as corporations. Indeed, it has been suggested that “home” states should be held liable for the overseas breaches of fundamental human rights norms by their multinationals for failing to prevent such conduct and/or failing to provide redress thereafter in their courts for harm caused.29 This would be in line with certain environmental treaties, such as the UN Convention on the Law of the Sea, under which responsibility may be imposed on state parties for the conduct of foreign affiliates of their national parent companies.30

Coupled with the obligation imposed under Article 2 of the ICESCR for states to take steps, “individually and through international assistance and co-operation” to fully realize the rights recognised in the Covenant,
Box B

Death in Benin cotton fields\textsuperscript{31,32}

Endosulfan was introduced into cotton production in francophone West Africa in the 1999/2000 season under a regional program to combat resistance of the American bollworm to pyrethroid pesticides. The first cases of cotton pesticide poisoning were reported in August 1999.\textsuperscript{33,34} The Council of Ministers authorized an investigation.\textsuperscript{35} One of the cotton-growing areas estimated 73 cases of poisoning and 37 deaths. An investigation by the national NGO, Beninoise pour la Promotion de l’Agriculture Biologique (OBEPA),\textsuperscript{36} estimated that at least 70 may have died. Authorities differ on endosulfan hazards: the WHO classifies it as moderately hazardous, and the U.S. Environmental Protection Agency as highly hazardous. Toxicity is influenced by the formulation.

Endosulfan use was recommended by Projet Regional de Prevention et de Gestion des Resistances de Helicoverpa armiger in Afrique de l’Ouest (PR-PRAO),\textsuperscript{37} a project of the national cotton research institutes in West Africa, the French cotton company CFDT, the French research agency CIRAD, and the global Insecticide Resistance Action Committee of the agrochemical industry association CropLife International (formerly Global Crop Protection Federation). The state cotton marketing board SONAPRA purchased an endosulfan product from the French company Calliope for distribution all over the country.

The deaths in Benin could be directly linked to a decision-making process that failed to consider the conditions of use in the country. CIRAD defended its use on the basis that endosulfan is used in cotton production in Australia and the United States,\textsuperscript{38} ignoring vast differences in the resources of users. The defence also ignores the problems of high endosulfan residues in Australian beef from the cotton growing areas which led to rejection of exports by Indonesia.\textsuperscript{39} In Benin, cotton farmers often spray in bare feet, without the use of safety goggles, gloves, long sleeves or respirators. Spray equipment is frequently defective or inappropriate. Pesticide application is hard work, and users breathe in strongly. Men, women, and children can be in the field during spraying. As in many other African countries, in Benin agriculture is the main activity of nearly 80% of the rural population. Cotton is main source of income of many farmers.

Those whose health was affected were predominantly in the 21–30-year age group—with clear implications for the ability to carry out essential field work, and thus on income. The main causes of death were consumption of food contaminated by spray drift, in transport or storage; direct use on vegetables; reuse of containers; inhalation during spraying; and, in four cases, suicide. The health effects included loss of consciousness, total lethargy, sore and grating eyes, nausea, vomiting, convulsions, anxiety and agitation, hypersalivation, diarrhea, trembling limbs, extremely sore throat, burning skin, difficulty breathing, difficulty balancing, fever.

Although alerted to the disastrous effect on farming communities, officials recommended endosulfan in the following season. OBEPA undertook an investigation in two provinces, and found 241 acute poisonings and 24 deaths, including those of 11 children aged under 10. The main culprit remained endosulfan, although some other pesticides (lambdacyhalothrin, dimethoate, and chlorpyriphos ethyl) were also responsible.

Corporations and Human Rights

In addition to state obligations under international human rights treaties, there is increasing demand and justification for the imposition of such obligations on corporations, and in particular multinational enterprises (MNEs), which have the potential to impact human rights in a manner that outstrips the ability of many states.\textsuperscript{39,40} In the pesticide field, a small number of corporations dominate, with the top six companies (European corporations Syngenta, Bayer, BASF, and U.S.-based Monsanto, Dow, DuPont) controlling over 75% of the market.\textsuperscript{41} Pesticide production and export are increasing in many developing countries. Food, fiber, and plantation companies also exercise a major influence over agricultural production.

The Universal Declaration of Human Rights (UDHR) itself, the parent of human rights instruments, declares that “every individual and every organ of society” shall strive to promote respect for the rights and freedoms set out therein, thus imposing a duty on all, including corporations, to comply. Rights recognized in the Declaration include the right to life (Article 3), just and favorable working conditions (Article 23), a standard of living favorable to health and well-
being (Article 25), and freedom from arbitrary interference in the home (Article 12).

The Organization of Economic Cooperation and Development (OECD) Guidelines on Multinational Enterprises request MNEs to, among other things: respect human rights; cooperate with local communities; ensure occupational health and safety; provide adequate environmental, health, and safety training; adopt the precautionary principle regarding these issues; and use technologies and procedures that reflect the environmental standards achieved in the best-performing part of the enterprise. The ILO Tripartite Declaration of Principles concerning MNEs and Social Policy similarly requests MNEs to: respect the UDHR, the ICCPR, the ICESCR, and the Constitution of the ILO; maintain the highest standards of health and safety in their operations, bearing in mind their relevant experience within the enterprise as a whole, including any knowledge of special hazards; and play a leading role in applying health and safety improvements within the whole enterprise.

In both the OECD Guidelines and the ILO Declaration, the term “MNE” is defined loosely and would encompass supplier/purchaser, licensing, and subcontractor relationships as well parent/subsidiary ones. These instruments are clearly relevant to the international trade in hazardous products, including pesticides or their components.

Reference should also be made here to the U.S. Alien Tort Claims Act 1789 (ATCA). This novel act enables aliens to the United States (whether or not resident there) to sue in the U.S. courts for acts or omissions alleged to have been committed “in violation of the law of nations or a treaty of the United States” and it enables aliens to bring civil actions in the U.S. courts for serious human rights abuses experienced abroad. The Act enables aliens to sue private parties—including corporations—for harm allegedly caused by them while acting “under the color of state authority” (or “under color of law”), where it can be shown that the private party cooperated or collaborated with the state to a sufficient degree. In addition, private entities may be sued for violations of specific norms of international law (such as genocide, certain war crimes and slave trading) recognized as extending to private conduct. The ACTA has been used to bring actions, for instance, against Shell for alleged human rights abuses in Nigeria and Unocal for alleged abuses in Burma.

The capacity of corporations to abuse the human rights of individuals is illustrated by the plight of the banana plantation workers in Costa Rica and elsewhere in Central America, exposed to the knowingly hazardous pesticide DBCP by the U.S.-based multinationals Standard Fruit and United Fruit and agrochemical manufacturers Shell and Dow (see Box C). Workers brought a legal action based on product liability rather than human rights breaches, but after 12 years are still waiting for a judgment.

The appendix summarizes key obligations under international human rights instruments, and demonstrates with selected examples where pesticide poisonings and deaths could be held to infringe on basic human rights. The conditions of use in developing countries impede the ability of poorer sections of society—women, men, and child workers, small-scale farmers and exposed communities—to take action to defend themselves.

Domestic Measures

Human rights instruments at the domestic level are generally in the form of constitutions or bills of rights. Such instruments are usually considered to be “above” other domestic statutes, being of such a fundamental nature. Although differing between states, they usually have a number of common features. They will invariably contain the right to life as a fundamental right. Many prohibit the arbitrary or unlawful invasion of someone’s privacy, family, or home, unless in the public interest. Some contain “Directive Principles of State Policy,”† which impose obligations on the state to protect the environment; maintain health and safety at work; or improve the health and nutrition of the people. Others, such as the South African Constitution, guarantee everyone the right “to an environment that is not harmful to their health or well-being.” While most Constitutional provisions are directed to the states, some‡ also impose duties on individuals, including corporations.

Many constitutions and bills of rights enable aggrieved people to bring actions against the state (and sometimes private individuals) for breaching their fundamental rights, either by directly violating their rights themselves, or for failing to protect them from violations by others. Faced with inadequate governmental regulation, aggrieved citizens in many developing countries have turned to enforcing their constitutional rights as a means of obtaining protection from, and in some cases compensation for, damage to their health and the environment. These actions are instructive in considering the constitutional obligations and possibilities relevant to the issue of hazardous pesticide use.

By recognizing a broad interpretation of the right to life, the Indian courts in particular have developed the constitutional protection of the right to health and a healthy environment. They have ruled that:

- the enjoyment of the right to life under Article 21 of the Constitution embraces “the protection and preservation of nature’s gifts without [which] life cannot be enjoyed” and that “[t]he slow poisoning by the polluted atmosphere caused by environment-

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†Such as the Indian Constitution.
‡Such as those of India and South Africa.
Exported bananas from highly intensive plantation production in Costa Rica provide the government with an important source of foreign exchange. Major plantation companies include the American firms United Fruit Company and Standard Fruit Company, and Central American owners. The industry accounts for 35% of pesticide imports and use. Regulation is minimal, and pesticides have caused serious ecological damage at source and downstream. According to the Costa Rican Audubon Society, pesticide contamination and deforestation are among the highest in the world, and the banana industry is largely responsible.86

Heavy applications of fungicides, herbicides, nematocides, and other agrochemicals leak into the drainage ditches crossing the plantations. From there, rivers and canals carry pesticides out to sea and affect the fragile coastal coral reefs. Populations along these routes depend on the water for drinking, washing, and fishing. Aerial spraying is intense, and commonly misses its target, destroying crops and killing fish. The plantation workers, their families, and other communities living near banana plantations are paying for Costa Rica’s prosperity with their health. Pesticide poisonings are three times higher in the banana-growing areas, even though the sector accounts for only 5% of the rural population.47

One pesticide in particular has caused major health problems. Costa Rican plantation workers were required to use the now-banned dibromochloropropane (DBCP) from 1967 to 1979. Manufactured by Shell Oil and Dow Chemicals in the United States, DBCP was used to control nematode pests. In 1977, 60 workers in California making the pesticide were found to be sterile. They later sued and were paid sums of up to $2.3 million for their injuries.88 The U.S. Environmental Protection Agency ordered a phase-out of the pesticide on food in 1977, and later removed it from the market. The Costa Rican government prohibited its import in 1979, but export from the United States to Costa Rica and other banana-growing countries continued until 1988.89 After the Costa Rican ban, Standard Fruit exported about 180,000 liters to Honduras, where managers continued to use it without fully informing workers of the dangers.105

Costa Rican workers brought the first lawsuit in the United States in 1983, led by Domingo Castro Alfaro on behalf of 82 banana plantation workers.88 Since then, more than 9,000 workers from the banana plantations have lodged complaints with courts in Texas and New Jersey against the DBCP manufacturers and the banana companies Standard Fruit and United Fruit.89

The companies pleaded “forum non-conveniens”—a tactic later used by Union Carbide after the Bhopal disaster to ensure that the case was heard in India—to argue that the case should be heard in Costa Rica. In March 1990 the Texas Supreme Court agreed that the case could be heard in Texas courts. The companies appealed, but the U.S. Supreme Court upheld the decision, allowing workers to seek compensation. Continuing to employ delaying tactics, the companies have prevented a final decision and compensation for Central American workers for over ten years. In December 2002, a Nicaraguan judge ordered Dow Chemical, Shell Oil and Standard Fruit to pay US$490 million to 583 banana workers. Once again the workers may not see compensation, as the companies seem likely to appeal. A spokesman for Dow Chemical called the judgment unenforceable because the ruling was “based on a law passed in Nicaragua that its own attorney general has called unconstitutional.”90

The full impacts of DBCP on the exposed populations are unknown. No studies have been carried out on women working in the plantations, on children of plantation workers, on communities exposed through proximity to plantations, and on casual plantation workers. There are likely to remain many unknown victims of DBCP.

Following evidence of severe cases of chronic ill health apparently related to aerial spraying of the insecticide endosulfan, the High Court of Kerala deferred to some of these principles in August 2002. The Court ordered a temporary ban on the sale and distribution of endosulfan in the state pending the outcome of a review of its use by the central government, as a “precautionary and defensive measure”905 (see Box D).

Elsewhere in Asia, the Pakistani Supreme Court has held that the right to life includes the right to live in a hazard-free environment and that “the right to have water free from pollution and contamination is a right to life itself.”904 A Bangladeshi High Court ruling on the importation of allegedly contaminated skimmed milk powder held that the right to life meant the right to protection of health, the right to normal longevity, and
Clusters of deformities and unusual diseases are occurring in Kerala, Southern India, in villages surrounded by cashew nut plantations owned by the Plantation Corporation of Kerala (PCK). The communities link their problems to the consistent spraying of endosulfan, three times a year since PCK took over the plantation in the mid-1970s. Communities have observed a decline in populations of honeybees, death of frogs, fish, birds, and chickens, and births of deformed cattle. The villagers are campaigning against aerial spraying and for the right of themselves and their children to a healthy environment. A local NGO, Thanal Conservation Action and Information Network, is documenting the case.87

The impacts affect community health and livelihoods. Dr. Mohana Kumar, who has practiced in the badly-affected Padre village and neighboring areas for 20 years, has documented incidents among his patients. Of 197 cases from only 123 houses, he has analysed 156 cases, showing: cancer 49, mental retardation 23, congenital anomalies 9 (cerebral palsy), psychiatric cases 43, epilepsy 23, suicide 9.88 A survey by the Kasaragod District Committee of seven villages (747 households with 4,102 inhabitants) within the cashew plantation designated respondents into Group A (less affected areas) and B (most affected). Group B had a disability rate 73% higher than average for the state, locomotor disability and mental retardation 107% higher, and chronic morbidity 70% higher. In Group A, total disability and chronic morbidity were consistent with overall rates for Kerala, but locomotor and visual disabilities were significantly higher. A survey of 400 households in February 2001 by the Deputy District Medical Officer found the rate of mental retardation in endosulfan sprayed areas was above the state average.89

In January 2002, a fact-finding mission undertaken by a medical doctor and professor of pharmacology and toxicology concluded: the illnesses are consistent with the intrinsic toxicological properties of endosulfan; there is no evidence of other environmental toxicants in the affected areas; there is a clear time and geographic association between the occurrence of the health problems and the aerial spraying of endosulfan; there is corroborating evidence of adverse effects on animals and the environment attributable to endosulfan; there is credible testimonial and clinical record evidence from competent medical practitioners; and endosulfan has been demonstrated by laboratory analysis to be present in high concentrations.

In August 2001 the state government banned aerial spraying of endosulfan and set up a committee to investigate the claims. The main endosulfan producer in India, Excel Industries, with the support of the Pesticide Manufacturers and Formulators Association of India, vigorously challenged the case. In March 2002 the government lifted the ban.90 In August, the High Court of Kerala took a precautionary approach to villager’s health, and ordered a further interim ban, pending a decision by central government.91
CONCLUSION

Significant evidence exists of widespread problems created by pesticides when used without all available safeguards. The general conditions of pesticide use in developing countries in particular can threaten lives, have adverse effects on human health, pollute the environment, and undermine the standard of living. Governments and the international community have recognized these dangers and adopted both guidelines and international treaties to prevent or ameliorate damage (the Code of Conduct, the PIC, POPs and Basle Conventions). These multilateral agreements partially address concerns, but have failed to prevent deaths, poisonings, and adverse effects on the environment, working conditions, and livelihoods.

The vulnerable groups most affected are in a weak position to take direct action to prevent harm, or to seek legal redress. The industries that produce, promote, or use hazardous pesticides are insulated from legal action and in the rare cases where communities have initiated claims the time scales for compensation can exceed a working lifetime. The global nature of these industries makes it extremely difficult for poor individuals and communities to trace and hold liable those who have contributed to death, ill health, or environmental damage. Evidence suggests that when action is initiated, there is a lack of clarity about the legal forum, and an ability on the part of corporations to delay the outcomes indefinitely. Corporate mergers and takeovers, uncertain origins of products, and the increasing pesticide production by national companies in developing countries make action more difficult. Nevertheless, holding companies directly liable for harm will remain an important course of action, and those who have contributed to death, ill health, or environmental damage. Evidence suggests that when action is initiated, there is a lack of clarity about the legal forum, and an ability on the part of corporations to delay the outcomes indefinitely. Corporate mergers and takeovers, uncertain origins of products, and the increasing pesticide production by national companies in developing countries make action more difficult. Nevertheless, holding companies directly liable for harm will remain an important course of action.

The failure of existing measures to reduce levels of toxic exposure in developing countries, and the difficulties of vulnerable communities to initiate action, point to the importance of guidance from human rights instruments. Governments need to take greater responsibility for preventing the human rights abuses that stem from widespread exposure to hazardous pesticides. The courses of action open include stricter regulation and implementation by removal of hazardous pesticides from the market, preventing exposure to hazardous pesticides of vulnerable, unprotected and untrained workers and communities where conditions of use are inappropriate; and stressing and encouraging widespread access to safer means of pest control and agricultural production. Under human rights instruments that impose an obligation of international assistance and cooperation to assist in implementation, the obligation to redress human rights abuses of pesticides extends to beyond any single government to nations exporting pesticides, or importing from agricultural systems that are poisoning or polluting.

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APPENDIX
Summary of Human Rights Obligations and Pesticide Abuses

<table>
<thead>
<tr>
<th>Human Rights Instrument*</th>
<th>Examples of Abuses</th>
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<tbody>
<tr>
<td><strong>Right to life and not to be arbitrarily deprived of one's life . . .</strong></td>
<td>Available global estimates: 20,000 unintentional deaths, 3 million poisonings.1</td>
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<tr>
<td>Article 3 UDHR (right to life, liberty and security of the person)</td>
<td>Bhopal, India, 1984–2002. Estimated more than 22,000 people have now died as a result of the immediate or ongoing effects of exposure to methyl isocyanate released from the Union Carbide plant producing cotton pesticides aldicarb and carbaryl.</td>
</tr>
<tr>
<td>Article 6 ICCPR (right to be protected by law and no one to be arbitrarily deprived of his life)</td>
<td>Vietnam. Death and severe mental and physical effects resulting from genetic and environmental contamination from spraying of defoliants (herbicide Agent Orange, comprising 2,4,5-T and 2,4-D with dioxin contamination) during the Vietnam War (1961–1971).50 Generational effects continue, and soil/water contamination is present.</td>
</tr>
<tr>
<td>Article 4 AmCHR: (right to have life respected to plant producing cotton pesticides aldicarb and carbaryl.</td>
<td>The Brazilian National Secretariat of Sanitary Surveillance of the Ministry of the Health estimates the country has 300,000 poisonings a year and 5000 deaths from agricultural pesticides. The annual cost to the country in treatment and lost work is estimated at US$540 million.5</td>
</tr>
<tr>
<td>Article 4 AmCHR: (right to have life respected to be protected by law and, in general, from the moment of conception. No one to be arbitrarily deprived of his life)</td>
<td>Peru, December 1999. 24 children died at school from drinking milk inadvertently mixed with the extremely toxic insecticide parathion, produced by Bayer.51</td>
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<td>Article 4 AfCHPR (respect for life and integrity. No one may be arbitrarily deprived of this right)</td>
<td>Benin cotton production—introduction of endosulfan caused at least 37 confirmed deaths and 73 confirmed poisonings in 1999-2000 season51; 24 deaths and 241 acute poisonings in 2000–2001 season.52 Monitoring in 2001–2002 season is still recording deaths (see Box B).</td>
</tr>
<tr>
<td>Article 6 CRC (Article 6(2) State parties shall ensure to the maximum extent possible the survival and development of the child)</td>
<td>Senegal, 2000. 22 incident reports confirmed 16 deaths from exposure to peanut treatment of three pesticides (carbofuran, thiram, benomyl). Additional deaths and poisonings suspected.52</td>
</tr>
<tr>
<td><strong>Right to just and favourable working conditions . . .</strong></td>
<td>Death of 16 year old boy of phorate poisoning, Kerala, India, 2001.53</td>
</tr>
<tr>
<td>Article 23 UDHR (just and favorable working conditions)</td>
<td>Matanzas province, Cuba, 1999. 15 people died after consuming food contaminated with endosulfan.54</td>
</tr>
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<td>Article 7 ICESCR (measures to ensure safe and healthy working conditions)</td>
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<tr>
<td>Article 7 AP_AmCHR (need for internal legislation regarding safety and hygiene at work)</td>
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<td>Article 15 AfCHPR (satisfactory working conditions)</td>
<td>Spain. The death of 16 year old boy of phorate poisoning, December 1999. 53</td>
</tr>
</tbody>
</table>

An estimated 25 million agricultural workers may suffer at least one incident of pesticide poisoning each year.55 ILO studies suggest that pesticides cause 14% of occupational injuries in the agricultural sector and 10% of fatalities in many countries.56 Malaysia, oil palm plantations. Severe health effects on sprayers, primarily women, mainly resulting from paraquat application, include skin rashes and sores, inflammation and loss of fingernails.57
The pesticide reporting system in California recorded 3,991 pesticide poisonings from 1991–96, of which 28% of cases were women. Banana workers in Costa Rica suffer hundreds of pesticide poisonings annually, primarily from paraquat. Excessive levels of cancer are found on pesticide workers in the coffee and banana-producing regions. Central America (Belize, Costa Rica, El Salvador, Honduras, Nicaragua, Panama, Guatemala) recorded almost 6,000 pesticide poisonings under its 1998 surveillance system of workers. The number of worker poisonings is estimated at 30,000. Specific concern with the legacy of exposure to DBCP, widely used in the 1970–1980s and known to cause sterility (see Box D).

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Philippines, Davao Del Sur area. 52 cocoa plantation workers hospitalized after poisoning with diazinon. Western Cape, South Africa. Study of 126 workers on fruit farms using paraquat confirmed chronic effect on lungs.

Protection of children and young persons from economic and social exploitation/hazardous working conditions . . .

Article 10 ICESCR (their employment in work harmful to their . . . health or dangerous to life or likely to hamper their normal development should be punishable by law)

Article 32 CRC (right of the child to be protected from economic exploitation and from performing any work likely to be hazardous or to interfere with his/her education, or to be harmful to his/her health or physical, mental, spiritual, moral or social development; there to be appropriate penalties or other sanctions to ensure the effective enforcement of this article)

Article 7 AP_AmCHR (there to be internal legisla- tive measures regarding the prohibition of unhealthy or dangerous working conditions and of all work that jeopardizes the health, safety or morals of persons under 18 years old)

Right to enjoyment of highest attainable standard of physical and mental health . . .

Article 13 ICESCR (steps to be taken to achieve this right include: provision for healthy child development; improvement of all aspects of environmental and industrial hygiene; prevention, treatment, and control of epidemic, endemic, and occupational and other diseases)

Article 16 AfCHPR (right to enjoy the best attainable state of physical and mental health; states to take all necessary measures to protect the health of their people).

Article 24 CRC (right to the enjoyment of the highest attainable standard of health

Article 24(2) State parties to take appropriate measures to: diminish infant and child mortality; combat disease and malnutrition, including through the provision of adequate nutritious foods and clean drinking water; taking into consideration the dangers and risks of environmental pollution

Article 24(4) State parties to promote and encourage international cooperation with a view to achieving

Cocoa production in West Africa engages 284,000 children (59% boys, 41% girls), of whom 153,000 apply pesticides (142,610 in Côte d’Ivoire, 5,500 in Cameroon, and 4,600 in Nigeria). Most work unpaid on family farms. In Côte d’Ivoire almost 12,000 children are recruited to work on farms where they have no family ties.

Banana plantations in Ecuador: Child workers tie pesticide-treated strips to banana plants without protection; children work while hazardous pesticides are applied by aerial spraying, including verified incident of 15 children poisoned and suffering headache, fever, dizziness, stomach aches, nausea, vomiting, trembling, shaking, itching, fatigue, and aching bones.

Egypt: more than 1.5 million girls and boys work as laborers in the agricultural sector. Children work up to 12 hours a day, six days a week, without contracts. Pesticide exposure is common from working in fields during spraying or returning to work before a safe re-entry period.

Spray practices in Indonesia substantially expose farmers to pesticides: 21% of spray operations resulted in three or more neurobehavioral, respiratory and intestinal signs or symptoms. The highly persistent POP pesticide dieldrin has been stored in appalling conditions for decades in the Sahel region of Mali. Leakages have contaminated at least 14,000 tonnes of soil, and poisoned the aquifer providing the main drinking water source for the Tuareg. This has caused deaths, and it is not known how many thousands became ill before the pollution was identified.

Workers in Washington State, United States, apple orchards found to have 16 times more pesticide residue in their urine than non-farmworker neighbors.

Ecuador, September 2000. Aerial spraying of herbicides to eradicate drug crops over-sprayed peasant farmers living close to the Colombian border, hospitalizing 44 with stomach and severe skin affects, and adversely affecting livestock.

Cotton production in Andhra Pradesh, India. Debtedness arising from low cotton prices, high cost of inputs, and yield failures from pesticide resistance led to high levels of suicides: 174 in one study. Concern that depression from pesticide exposure exacerbated the reaction.
progressively the full realization of this right and particular account shall be taken of the needs of developing countries.

**Right to an adequate standard of living**

- Article 25 UDHR (to be adequate for health and well-being; motherhood and childhood entitled to special care and assistance)
- Article 11 ICESCR (and to continuous improvement of living conditions, recognizing the essential importance of international cooperation).
- Article 27 CRC (adequate for the child’s physical, mental, spiritual, moral, and social development)

A study showed clear differences in the growth and development of two groups of 4- and 5-year-old Yaqui children living in the same valley of northwestern Mexico who were exposed to pesticides and not exposed to pesticides. The exposed children demonstrated decreases in stamina, gross and fine eye–hand coordination, 30-minute memory, and the ability to draw a person.71

Davao region, Philippines. A village of 120 households living near a banana plantation have had their land and health destroyed from pesticide practices on the plantation. Pollution of the river has destroyed valuable food source from fishing.72

Spray drift of metam sodium from a sprinkler application blew into Earlmart, a town of 150 people in California. It took nine days for the county health team to arrive and treat poisoning victims who could not afford medical care. One mother of three received a bill for $6,000 for a trip to hospital.73

The major factor affecting pesticide exposure in Mexico was found to be the economic standing of the farm workers, not the level of technology. The workers from the poorest communities were at the greatest risk from pesticide poisoning.74

**Right to a healthy environment** . . .

- Article 11 AP AmCHR (State parties shall promote the protection, preservation and improvement of the environment).
- Article 24 AFCHRPR (people’s right to a generally satisfactory environment favorable to their development)
- Article 12 UDHR; Article 17 ICCPR; Article 16 CRC (freedom from arbitrary/unlawful interference with privacy, family, home, and right to legal protection against such interference)
- Article 11 AmCHR (freedom from and protection against arbitrary and abusive interference of private life, family or home)

Families in Durrës, Albania, living on site of former chemical plant that used to store pesticides. Considered one of the five most contaminated “hot spote” by UNEP.75

Kasargod District, Kerala, India. Over 25 years of exposure to aerial spraying of endosulfan and other pesticides have left villagers suffering from repeated acute and chronic illnesses, and a high rate of birth abnormalities (see Box C).76

Kerala, India, 2002. 32 schoolchildren in Wyanad district were hospitalized after being poisoned by phorate drift being sprayed on a banana field adjacent to the school.77

Four family members in Chad died after eating pesticide contaminated salad and leaves, 1999.78

Aerial drift of pesticides causes symptoms and lower cholinesterase levels in populations living near sprayed cotton fields, Nicaragua.79

Poisoning of individuals heading to market and passing by field where pesticides were being applied. Chempur village, India, 1999.80

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*NB. Only international instruments are cited here though many domestic constitutions will contain similar provisions.*