**Submission to** **UN Committee on the Rights of the Child. Protect our Children from Toxic Pesticides!**

**By Pesticide Action Network**

**Introduction**

Pesticides negatively impact the health and intelligence of children and thus violates the right of the child to the enjoyment of the highest attainable standard of health guaranteed in Article 24 of the Convention on the Rights of the Child.

Children are more vulnerable to pesticides. Children breathe more air, eat more food and drink more water per unit of body weight which leads to greater exposure in a pesticide-contaminated environment. Early-life exposure can damage their developing brain and body systems, disrupting mental and physiological growth that lead to a range of diseases and disorders. Pesticides are now considered a “silent pandemic” by public health experts.

This submission puts to fore the urgent need to protect children from toxic pesticides so that they can live healthy lives to their full physical, mental, intellectual and social potential. The pesticide regulatory policies, standards and practices around the world should reflect this crucial need.

To contextualize the pesticide issue, this submission will start with a short historical background that highlights cases that put into ones’ consciousness the detrimental impacts of pesticides to children. It will then discuss the specific effects of pesticides to health of children as shown by the voluminous research studies. Recommendations for corporations and states will be given in the end sections.

**Failed Regulations**

The international chemicals conventions, national pesticide regulatory processes, and government policies are all failing to protect children from the harmful effects of pesticides. New research is revealing that innocuous exposures to low levels of pesticides, such as are commonly found as residues in food or drift on the wind, are undermining the health and well-being of our children, and leaving them with a lifetime legacy of damage and failed potential.

International chemicals conventions are based on consensus and weakened by vested interests – for example, India blocking the listing of endosulfan under the Stockholm Convention on Persistent Organic Pollutants as India was the main manufacturer of endosulfan, even though that country has seen the worst of the effects of endosulfan. But international conventions and national regulations are inter-linked—the former can facilitate change at the national level, and strong national policies can promote strong leadership in international conventions to make them truly effective in protecting children.

There are three main ways in which national regulatory processes and government policies are failing to protect children from pesticides: 1. Pesticide registration processes fail to assess the real effects of pesticides on children. 2. Pesticide registration processes and government policies and practices fail to provide protection to children from the pesticides that they have registered, let alone those that are used illegally. 3. Governments fail to question the received ‘wisdom’ that pesticides are necessary and to look beyond them at highly sustainable methods of managing pests, weeds, and diseases. All of these areas of failures stem from a primary failure to apply the precautionary principle, despite its widespread inclusion, in some form or other, in a number of international conventions and treaties, such as the Stockholm Convention on Persistent Organic Pollutants.

**Failure of States to Protect Children and Communities from Harm Caused by Pesticide Exposure**

*The Bhopal Tragedy: massive effects on children*

About 45 tons of methyl-isocyanate gas (MIC) leaked from Union Carbide Corporation’s chemical plant in Bhopal in the state of Madhya Pradesh, India at around 1:00 AM of December 3, 1984 immediately killing about 3,800 people mostly in the slum colony adjacent to the plant. Estimated deaths run as high as 10,000, with close to 20,000 premature deaths occurring in the subsequent two decades (Sharma, 2005). Epidemiological studies conducted soon after the accident showed significant increases in the incidence of pregnancy loss, infant mortality, decreased foetal weight, chromosomal abnormalities, and impaired associate learning/motor speed/precision, ocular and respiratory illnesses. Many of the exposed population gave birth to physically and mentally disabled children (Dhara & Dhara, 2002).

*Kasargod Endosulfan Disaster: impacts on children last a life time*

In 1977-78, the state-owned Plantation Corporation of Kerala (PCK) carried out trials on aerial spraying of endosulfan over its cashew plantations, which extended for 45,000 hectares in Kasargod District in Kerala. Regular aerial spraying 2 to 3 times per year commenced in 1981. That same year, various disabilities among domestic animals and people were observed in Padre village in Enmakaje panchayat of the district. Subsequently, the Kerala Sastra Sahithya Parishad (1994) reported that the disability rate among the people was 73% higher than the overall disability rates for the entire state. The locomotor disability and mental retardation, was 107% higher (Quijano, 2002). A total of 197 cases from 123 households, were documented to have cancer, cerebral palsy, mental retardation, epilepsy, congenital anomalies and psychiatric disorders. The cancers include abdominal, uterine, liver and neuroblastoma. A community survey estimated 9,500 victims in the district (Irshad & Joseph, 2015). Among the victims are Shruti, now 22, born with a twisted leg and only four fingers in each hand, with those on her right hand malformed; and Vishnu Batt, 32, who is developmentally delayed, stunted in growth and with deformed legs (Sundaram, 2015).

*Kamukhaan – A Poisoned Village*

Kamukhaan is a community of 700 individuals in Digos, Davao del Sur (Mindanao, Philippines). It was a village with rich natural resources until the entry of Lapanday Agricultural Development Corporation (LADECO) banana plantation in 1981. Large doses of pesticides are sprayed aerially 2-3 times a month sweeping through the entire plantation and the village. During spraying, the strong and odorous fumes blanket the community. Fumes sting the villagers’ eyes, make their skin itch, suffocate and make them weak and nauseous. The plantation also ground-sprays their banana crops with Furadan and Nemacur, both of which have been labelled as “extremely hazardous”. When rains wash over the plantation, the pesticide-riddled water flows into the village where it rises up to as high as waist level. Villagers who unavoidably wade in and the children who play in it get ill. It contaminates the river and the sea resulting to fish kills, and poisons the land that the coconut trees stopped bearing fruit and ranged animals die. Infants are born with a range of abnormalities, from cleft palate to badly disfigured bodies, and with impaired mental and physical development, and some die at birth or shortly after (Quijano, 1999).

*The Poisoning and Murder of Silvino Talavera of Paraguay*

On January 2, 2003, Silvino (11-year old boy) cycled to the stalls by the nearest main road to buy some meat and rice. On his way back home, passing along the community road that runs through the soy fields, he got sprayed by Hermann Schlender with pesticides used for soy monoculture. He was so drenched that he had to immediately wash himself in the river. Later that day, Silvino’s family fell ill after eating the food Silvino bought. They had to be hospitalised. On January 6, Silvino returned from the hospital but on the same day, another soy producer Alfredo Laustenlager sprayed at 15 meters from their house. Three brothers and 20 more villagers was hospitalised with Silvino, who had lost consciousness. On January 7, Silvino was pronounced dead. Silvino’s family suffers many health problems as a result of the continuous exposure to the pesticides. They have had lung, stomach problems, allergies, headaches and bone aches, and they need medical treatment they cannot afford (Radio Mundo Real, 2010).

**Exposure and Health Impacts of Pesticides to Children**

The above cases give a preview of the pesticides’ acute and chronic effects. Research done after these events (Watts, 2013) give sufficient evidence to indict low level exposures to pesticides as a serious threat to health and well-being of children, and the subsequent generations. Many pesticides can be readily transferred from the mother across the placenta to the developing foetus during pregnancy (Daston et al. 2004), and so children are born already carrying a significant load of pesticides. In a New York study of newborn infants, seven pesticides and pesticide metabolites were detected in the umbilical cord blood of up to 83% of the children (Whyatt et al. 2003). The presence of pesticide residues in the first faeces of newborns is added evidence that the foetus has been exposed *in utero* to pesticides (Ostrea et al. 2006).

Infants are further exposed to pesticides through their mothers’ milk. A survey of infants in Bhopal, India, revealed that they were consuming through breast milk, 8.6 times more endosulfan than the tolerable daily intake levels recommended by WHO, as well as chlorpyrifos, HCH, malathion, and methyl parathion (Sanghi et al. 2003). In Assam, India (Mishra & Sharma, 2011), breast milk was found to contain high levels of DDT and DDE, and high levels of HCH with 100% of samples exceeding the WHO guideline. There is also evidence that these residues are accumulating in children (Verner et al. 2010).

Metabolites of organophosphates (OPs) have been found in the urine of 99% of urban pre-school children in Seattle, USA. The metabolites were present even in those whose parents did not use pesticides indicating that at least some of them came from diet (Lu et al. 2001). Exposure to pesticides can come through various means like the application of shampoo containing permethrin to treat head lice or through vector control in schools or at home.

*Acute Effects*

Symptoms of acute poisoning in children vary with the type of pesticide, but for the commonly used OPs and carbamates, they include fatigue, dizziness, blurred vision, nausea, vomiting, dry throat and difficulty breathing, stinging eyes, itchy skin, and a burning nose; and muscular symptoms like stiffness and weakness. Death can occur rapidly, or over the course of a few weeks (Goldman, 2004). In the case of Silvino, death came within 24 hours due to massive exposure. Other symptoms that may occur are seizures, paralysis, coma, depression, inarticulate speech, memory loss, rapid pulse, anxiety, involuntary twitching, sweating, difficulty in walking, and uncontrolled urination (Watts, 2013; Rengam et al. 2007).

*Chronic Effects*

There are pesticides that are teratogenic. Among these are the OP insecticides like dimethoate; carbamate insecticides like carbaryl; fungicides like benomyl, captan, maneb, mancozeb, propiconazole; and herbicides such as paraquat and 2,4-D (Garry et al. 1996; Garcia, 2003). Parental exposure has been associated with congenital abnormalities (Magoon, 2006; de Siqueira et al. 2010) including abnormally placed urinary opening on penis, absence of one or both testes (Kristensen et al 1997; Carbone et al 2006; Rocheleau et al 2009) and micropenis (Gaspari et al 2011a); missing or reduced limbs (Schwartz et al 1986; Schwartz & LoGerfo 1988); anencephaly (Lacasana et al 2006); spina bifida (Brender et al. 2010); and congenital heart disease (Yu et al. 2008). The critical period of maternal exposure to pesticides is from the month before conception and the first trimester (Nurminen et al, 1995; Garcia et al. 1998). The critical period for paternal exposure is during the three months prior to conception (Brouwers et al. 2007; Pierik et al. 2004). Parental exposure has also been linked to stillbirths (Goulet & Theriault, 1991; Rupa et al., 1991; Taha & Gray, 1993; Nurminem et al. 1995; Pastore et al., 1997; Medina-Carrilo et al. 2002). One study found that agricultural workers exposed to OPs had significantly increased sperm chromosome nullisomy involving the sex chromosomes, increasing the risk of genetic syndromes such as Turner syndrome (Garry, 2004).

The most striking evidence that pesticides cause birth defects comes from the village of Kasargod, Kerala where in addition to the above defects, congenital defects include deformities of hands and feet and other skeletal abnormalities; congenital heart disease; congenital mental retardation and cerebral palsy; and congenital eye problems such as cataracts and retinopathy. The congenital problems were more prevalent in girls (NIOH, 2002; Quijano, 2002). Watts (2013) did a comprehensive review of studies linking parental pesticide exposure to low birth weight and decreased head circumference of children. Among these pesticides are DDT, DDE, metolachlor, lindane and other isomers of HCH.

Neurotoxic OPs may be a key factor in ADHD. Animal studies have shown OPs cause cognitive deficits and hyperactivity (Bouchard et al., 2010; Marks et al, 2010). Pesticides are now regarded as one of the culprits in autism, with both OPs and OCs listed in the top ten causes (Landrigan et al. 2012). It was also proposed that OPs are responsible for a significant lowering of IQ across the whole US population (Bellinger, 2012). Rowe et al. (2016) found that residential proximity to OP and carbamate pesticide use during pregnancy is associated with poorer cognitive functioning in children at 10 years of age.

Newborn infants in New York, exposed *in utero* to chlorpyrifos from household use, were found to have delayed cognitive and psychomotor development. Those most exposed had significantly more attention problems, ADHD and pervasive developmental disorder at three years of age (Rauh et al. 2006; Gulson, 2008). It was found that these effects were independent of socio-economic factors (Lovasi et al. 2011). It was further found that prenatal exposure to chlorpyrifos alter children’s brain structure (Rauh et al. 2012).

There is an increasing amount of epidemiological evidence (Watts, 2013) that both direct childhood exposures and parental exposures to pesticides are associated with childhood cancer such as leukaemia, brain cancer, non-Hodgkin’s lymphoma, neuroblastoma, Ewing’s sarcoma, and Wilm’s tumour. Others include soft-tissue sarcoma, colorectal cancer, germ cell cancer, Hodgkin’s disease, eye cancer, renal and liver tumours, thyroid cancer, and melanoma.

**Recent Cases of Pesticides Poisoning**

Poisoning of children by pesticides happens in countries around the world, whether through food, or through exposure to pesticides drifting from agricultural fields or though pesticide contaminated soil and water or other means.

In 2013, 23 children in India aged 4 to 12, were killed after eating their mid-day meal (Hindu,2013). Forensic examination showed the presence of high toxic levels of monocrotophos, a highly hazardous pesticide. The manufacturers of monocrotophos such as Dow Chemicals must be held to account. It is important to note that WHO had urged India to ban monocrotophos earlier in 2009. If only the producers of monocrotophos and the Indian authorities had heeded the call to prohibit the use of such deadly chemicals, 23 innocents would have continued enjoying their childhood with their parents today.

In 2014, 39 preschool children in China were poisoned, of whom two died, after consuming food that was contaminated by a rodenticide known as TETS (Liberty Voice, 2014). Although banned in the early 1990s, this pesticide is widely used due to availability and profitability. In 2013, 49 children in Cambodia fell ill after consuming food that was contaminated with pesticides. Another 440 children were poisoned in 2015. From initial fact finding missions by PAN Asia P and CEDAC, children in rural Cambodia are often exposed to brain harming pesticides like chlorpyrifos and the potential cancer causing herbicide glyphosate, after it has been sprayed near the schools

In August 10, 2014, a three-year old Filipina died after inhaling toxic gas from banned aluminium phosphide which leaked through the AC duct of their Dubai apartment. The incident took place in Al Qusais on the second day of Eid Al Fitr when the tenant of an apartment sprayed the banned aluminium phosphide (rodenticide) and left for his home country. She was one of two Filipinos who died of pesticide poisoning that injured four others, including the girl’s father and mother. The hospital report established the presence of phosphine gas in the victim’s body. (Emirates 24/7 News,2014)

In 2015, 11 children in Bangladesh aged 2 and 6 years started having symptoms of pesticides poisoning including fever, convulsions and unconsciousness after eating fruits laced with pesticides (The Daily Star,2015) They died shortly after. This was not an isolated incident, 14 children also shared the same fate in 2012. (The Daily Star,2012) Children living in rural areas are more exposed to pesticides. In 2015, a study in Malaysia found that children aged 10 to 11 years exposed to organophosphates and carbamates near rice paddy fields had poor motor skills, poor hand/eye coordination, attention speed and perceptual motor speed. Children also had lower cholinesterase levels, a clear indicator of OP poisoning. (Hashim & Baguma,2015)

In 2014-15 PAN-UK undertook small scale surveys of family farms in six Former Soviet Union countries, supported by the EC and in collaboration with the Rotterdam Convention and the UN FAO. The surveys in Kyrgyzstan and Moldova included 121 and 31 children respectively, 15 and 17% of whom reported that they handled pesticides directly in addition to undertaking other risky tasks around the farm (Willis, 2015)

Tragedies like Bhopal, Kasargod, Kamukhaan and Silvino Talavera, as well as the tragedies of everyday exposure that fly under the radar, will continue unless serious actions are taken to prevent children’s exposure to highly hazardous pesticides.

**Pesticide Use Transgress Children’s Rights**

The developing foetus and small child are especially vulnerable to the effects of pesticides and other toxic chemicals. Children may also be exposed to pesticides when they are in their mother’ womb when their mothers consume pesticide residues in food and water or when they exposed through their work and at home. These pesticides could be linked to cancer, endocrine disruption and other adverse impacts and the pesticide impacts are not adequately understood in terms of how they will affect the child later in life. Worldwide, children are involved in pesticide application, but the exact number is unknown due to the absence of comprehensive monitoring by the State. Article 3(d) of the ILO Convention on the Worst Forms of Child Labor specifies such labor as “work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children”.

The use of pesticides and exposure to these chemicals are aggravated due to poverty. This is made worse with racial and ethnic discrimination and even casteism that are interlinked with increased inequality and ensures that these communities are kept disempowered and poor. This discrimination makes them unable to be heard and to address the problems if they arise. Poverty intensifies the exposure to the worst pesticides particularly malnutrition can worsen the effects of pesticides and children are the most affected. In addition, poor communities have less ability to address the health impacts of pesticides and lack resources to change their farming to organic or agroecology. As workers they have less control on the types of pesticides they are using or even to stop applying these pesticides. The lack of protective equipment, ill-adapted to local weather conditions are rarely used and contribute to pesticide poisoning.

**The trade in pesticides**

The existence of double standards in the international trade of pesticides from developed countries to developing countries is still prevalent and involves both the exports of hazardous pesticides and the transfer of production facilities. This situation is intensified with the lack of resources for prevention and control of pesticides in developing countries and lack of legislation and inspection by governments. Overall, this factor further contributes the continued impact of pesticides on children’s health and well-being.

**With the foregoing accounts which are over and above the UNEP Report on childhood pesticide poisoning (2004), it is clear that the continuous and indiscriminate use of pesticides is a transgression of children’s rights. To wit, Article 24 of the Convention on the Rights of the Child (CRC) recognizes, “the right of the child to the enjoyment of the highest attainable standard of health [...] taking into consideration the dangers and risks of environmental pollution”. Article 10 of the CESCR also calls for “special measures of protection and assistance to be taken on behalf of all** children and young persons without any discrimination”. Article 6 of the CRC recognizes that, “every child has the inherent right to life” and that the survival and development of the child is ensured to the “maximum extent possible”. Pesticides are a silent pandemic that have the potential to cause irreversible health impacts even in small and minute amounts that may physically, mentally, psychological, social and emotionally stunt children’s development and prevent their full enjoyment of health and to reach their full potential.

**Children’s Engagement in UNCRC Process**

Children must be made aware of their rights to a safe and healthy environment through intensified information, education and communications campaign. Student/Children’s organizations must be tapped for the IEC on the harmful effects of pesticides and how they can better protect themselves. They may serve as monitors of pesticide use in their communities and must have a direct line with the State or the NGO Group for reportage and redress. It is best that representatives from their ranks be given a seat in the UN CRC.

**Corporations’ Role in Preventing another Pesticide Tragedy**

Agrochemical corporations profit from the production and sale of pesticides that are inherently poisonous while the world’s rural populations and children face the daily hazard of pesticide poisoning. Corporations have used their political, economic and other influences to promote and protect their vested interests. These corporations have the obligation to ensure that chemicals are used in such a manner that they are not a threat to human health and the environment. Moreover, the realisation of the right to health requires proactive action to eliminate risks to health (and health risks from their presence in the environment) posed by chemicals and pesticides in their production, use, release, and incorporation into products. This realisation requires the elimination of pesticides that are known to cause cancer and other chronic, irreversible effects and the distribution of information about these to the general public. This is further emphasised in the International Code of Conduct on Pesticide Management which states that corporations have the responsibility to ensure pesticides are handled safely during their life cycle and disposed of in such a way that they do not constitute a threat to human health or communities living in their proximity.

The right to life, to health, and to a healthy environment must take precedence over corporate and proprietary rights. The right to engage in a profit-making venture (selling a chemical) is a derogable, conditional right, while the right to health is a non-derogable, fundamental human right. States must protect children’s rights within their territory and jurisdiction, including protection from abuse by business enterprises that produce, import, trade/sell and use pesticides. Under the UN Guiding Principles on Business and Human Rights, this requires taking appropriate steps to prevent, investigate, punish and redress such abuse through effective policies, legislation, regulations and adjudication. States should set out clearly the expectation that all business enterprises domiciled in their territory and/or jurisdiction respect human rights throughout their operations. To this end, businesses must have policies in place to conduct human rights due diligence and address adverse human rights impacts with which they are involved (Ban Toxics et al. 2015).

Corporations should respect and uphold human rights, the welfare of the populations and the protection of biodiversity and ecosystems and thus must:

1. continually monitor the impacts of their product and to retrieve and get it off the market when there are indications of its toxic and chronic effects;
2. properly label their products and use language that the users can understand and ensure that their products are used properly by giving comprehensive training to the users;
3. stop maligning/harassing individuals who alert the State and the Public of the harmful effects of their products; instead provide funding to third party organizations to enable them to investigate/research further on the products’ impacts and metabolic properties;
4. indemnify victims whenever their products prove to have caused an irreversible harm; clean-up their wastes and restore/rehabilitate areas laid barren and polluted because of their products;
5. discontinue the production and sale of highly hazardous pesticides and
6. begin implementing a real process of transition from pesticide manufacture to development of ecologically sustainable pest management technologies.

**The States’ Obligations to Prevent the Silent Pandemic**

The States have an obligation to prevent exposure by children to toxics including pesticides and safeguard the child’s right to a health and safe environment. State Parties should adopt the precautionary principle and the principle of minimum harm.Registration processes must move from an industry supportive model of risk assessment to a more public health supportive model of hazard assessment, with cut-off criteria that prevent the registration of pesticides that are carcinogenic, mutagenic, developmental neurotoxins, immunotoxins and endocrine disruptors. Registration must include alternatives assessment and opt for the least harmful method of managing pests, weeds and diseases. Where effective non-chemical methods or less toxic chemicals exist, a toxic pesticide should not be registered or used. If there are none, then the next step is to determine whether the pesticide meets the cut-off criteria for hazardous properties. (Watts & Williamson 2015).

This is an improved version of the substitution principle which first came into operation in Swedish pesticide policy in 1985. “According to the Swedish Act on Chemical properties (SFS 1985, p 426) section 5 ‘anyone handling or importing a chemical product must take such steps and otherwise observe such precautions as are needed to prevent or minimize harm to human beings or to the environment. This includes avoiding chemical products for which less hazardous substitutes are available.” | Bergkvist et al 1996. Sweden’s National Board of Agriculture did recognise the need to assess nonchemical methods: “If equally effective, non-chemical methods are available for a certain control a pesticide will be banned for that control.” Liden 1989

Robust policy and practice options to enable a global transformation towards ecosystem-based farming – best exemplified by agroecology – exist (Watts & Williamson 2015). However, powerful commercial interests, weak or captured public sector actors and lack of political will continue to hamper the establishment and meaningful implementation of these progressive options. Highly targeted and strategic interventions are needed that tackle the core of the problem and thereby rebalance power in the agricultural food system.

The problems we have today with children’s lives being blighted by pesticides are because of an institutional failure to acknowledge that pesticides are not necessary. Most governments and many scientists assume, without any evidence, that pesticides are necessary. But good science and a wealth of observational data have shown repeatedly that farmers can make more money, and improve their food security and the health of their families and the environment by not using pesticides and practicing instead agroecology based principles. (Watts &Williamson 2015)

In 2010, the UN Special Rapporteur on the Right to Food, Olivier De Schutter reported to the UN Human Rights Council that, in order to combat hunger and malnutrition,

“States should implement public policies supporting the adoption of agroecological practices.” His report found that agroecology raises productivity at the field level, reduces rural poverty, contributes to improving nutrition, and contributes to adapting to climate change, concluding that “States can and must achieve a reorientation of their agricultural systems towards modes of production that are highly productive, highly sustainable and that contribute to the progressive realization of the human right to adequate food.” (De Schutter 2011)

Modern agroecological approaches to food production, together with many of the ecological practices that have evolved with farmers working alongside nature through hundreds of years, are proving to be sustainable, economically advantageous and good for food security. Successful cases of agroecological farming in Asia, Africa, Latin America, Europe and USA, presented in the book “Replacing Chemicals with Biology, Phasing out highly hazardous pesticides with agroecology” (Watts & Williamson 2015) substantiating the long-standing claim that ecological principles applied to agriculture are effective tools in the management of pests, including weeds, and provide sustainable livelihoods to farmers and rural communities. There is a wealth of scientific and evidential data showing that crops can be grown perfectly well without using pesticides. The case studies show that agroecological farming can improve food security and strengthen food sovereignty, while providing better adaptation to climate change and reducing harmful environmental impacts.

In summary, in order to protect children from the developmental effects of hazardous pesticides, government policies and practices including pesticide registration processes, need to change dramatically—to adopt the precautionary principle and the principle of minimum harm; and implement alternatives assessment and substitution while exploring other forms of agroecological practices.

Pesticide Action Network provides the following recommendations to address the problems of children’s exposure to highly hazardous pesticides:

Governments and relevant others should:

1. Change agricultural policy and practice to remove the assumption that pesticides are necessary; and encourage farmers to change to agroecology, biodiversity-based ecological agriculture, or organic agriculture; and ensure that pest, weeds, and diseases are managed by the methods that cause the least harm to humans and the environment (Principles of Precautionary and Minimum Harm);
2. In pesticide registration, replace risk assessment with alternatives assessment and hazard assessment, using the precautionary principle as the framework, such that pesticides are only registered if there is no effective less harmful alternative, including non-chemical methods of management; in pesticide registration, institute cut-off criteria such that pesticides that are carcinogenic, mutagenic, developmental neurotoxins or immunotoxins, or endocrine disruptors are not registered or used; ensure the registration process is based on studies from independent scientists not industry science, but require industry to reveal all it knows about the toxic effects;
3. require buffer zones for plantations or farms that use pesticides, and to regularly monitor these; ban aerial spraying of pesticides; ban the use of genetically modified crops that require massive use of pesticides/herbicides.
4. ensure that pregnant women and children are not exposed to highly hazardous pesticides, or pesticides that have the potential for developmental toxicity or endocrine disruption, including through residues in food and
5. build individual and community awareness of the pathways of exposure for children, and the potential effects on their health.

We end this submission with a prayer that States and the UN will promulgate towards the adoption of our recommendations for the sake of the present children and the future generations. For our own survival, the time to act is now.

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