

## PRESS RELEASE

### **Where poison flows in the veins...**

**CSE Study finds residues of 6-13 pesticides in blood samples of villagers in Punjab.**

**There are no standards for 'safe levels' of pesticides in our blood. But the level of pesticide found in Punjab samples has no comparison. The pesticide cocktail includes old and persistent pesticides like DDT and lindane. But it also includes residues of highly toxic (considered not persistent by industry) pesticides like monocrotophos and chloropyrifos.**

**But nobody can tell you what these toxic substances will do to the human body. Are they responsible for increased cancer or other diseases? Nobody can say because nobody knows.**

**But we know enough to say that this cannot be 'safe'. This cannot be 'acceptable'. The study calls for urgent action to regulate use. It calls for action to monitor human bodies – a biomonitoring programme – to ensure that this chemical invasion is stopped.**

**Chandigarh, June 7, 2005:** A study by the Centre for Science and Environment (CSE), a New Delhi-based research and advocacy organisation, has found very high levels of pesticide residues in human blood samples taken from Punjab villages. The study conducted by the Centre's Pollution Monitoring Laboratory appears in the fortnightly newsmagazine *Down To Earth* (dated June 15, 2005).

The study tested 20 randomly selected blood samples from four villages — Mahi Nangal, Jajjal and Balloh in Bhatinda district and Dher in the district of Ropar. Each sample, was tested using an internationally accepted methodology was found to contain 6-13 different pesticides.

The levels of certain persistent organochlorine pesticides (OCs) in the samples were astounding: 15-605 times higher than those found in blood samples of people in the US, tested by the US Centre for Disease Control and Prevention in its report of 2003. Levels of lindane, a restricted pesticide in India, were 605 times higher than those found in the US population. Similarly, the levels of DDT were 188 times higher. The CSE study detected hexachlorocyclohexane (HCH) in all the blood samples, and DDT in 95 per cent of the samples (*see attached table and graph*).

The study is one of the first in India to test for organophosphorous pesticides (OPs) in human blood. These were found in equally high levels. Industry claims that these pesticides are not persistent and will degrade quickly. But the supposedly low-persistent OP pesticide monocrotophos was detected in 75 per cent of the blood samples, while chlorpyrifos was present in 85 per cent samples. Seventy per cent of the samples also contained two more OPs: phosphamidon and malathion.

Shockingly, the average levels of monocrotophos in the Punjab blood samples (0.095 ppm) were found to be four times higher than the short-term exposure limit for humans set by the World Health Organization/Food and Agricultural Organization. If we consider the long-term exposure limits, the results are even more unnerving: the average amount of monocrotophos in the blood of the population CSE tested was 158 times higher than the long-term exposure limit for humans! (*See attached table and graph.*)

The presence of OPs in blood is especially worrying, say CSE experts. OPs, touted by industry as non-persistent and degradable, are much more toxic than the previously used OC pesticides like DDT. The CSE analysis points out that while blood samples seem to be already

contaminated with high levels of older OC pesticides, newer OP pesticides are now adding to the body's burden.

The CSE study points to an urgent need to review the safety and use of this supposedly safer pesticide. Even if the pesticide degrades in the body, as claims industry, the fact is that the exposure is high and there are bound to be impacts for the time the pesticide remains in the body.

This is what studies are finding across the world. Studies done on animals show that even a single, low-level exposure to certain organophosphates, during particular times of early brain development, can cause permanent changes in brain chemistry. Chlorpyrifos, for example, decreases the synthesis of DNA in the developing brain, leading to drops in the number of brain cells. If these findings are extrapolated to humans, it may mean that early childhood exposure to chlorpyrifos can lead to lasting effects on learning, attention, and behaviour -- just as were seen with another environmental neurotoxin, lead.

Another study, done in New York in 2003, found that chlorpyrifos and its toxic metabolite chlorpyrifos oxon can cross the placenta barrier. The study found that if pregnant women are exposed to this pesticide, at very low levels, it can affect their unborn child.

It is well known that pesticide use in Punjab is one of the highest in the country. But what nobody knows is what these pesticides are doing to the people there. What do these high levels of pesticides in blood mean in terms of health effects? What are the cancer rates in Punjab? Is there a connection between toxin over-use and the disease burden? Little is known to make the link definitively.

But this conspiracy of silence should not be taken as proof of safety, says CSE. "This is nothing short of chemical crime," says Sunita Narain, director, CSE. "What we found in Punjab has no comparison. There is no proof that cancer in Punjab is because of the pesticides it uses. In this world of industry, the onus is on us to prove our death, in the face of an evident murderer. But we must understand more so that the truth cannot remain denied."

But one fact is clear: though science is uncertain on this issue, it is a fact that, across the world, there is a growing unease about pesticide body burden. The precautionary principle demands that we cannot allow pesticides to infiltrate our bodies. Many experts now believe there should be a paradigm shift in the way pesticides are regulated and monitored in our country. It is no more about monitoring pesticides only in food commodities. It is about checking the body burden and then regulating these toxins. Body burden studies hold the key to a foolproof system to regulate the use of pesticides and other chemicals: can the government wake up before it is too late?

- *To read or download the complete CSE report, the Down To Earth cover story, or this press release, please visit [www.cseindia.org.in](http://www.cseindia.org.in)*
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