

PRESS RELEASE

Continuing nightmare in Bhopal: CSE laboratory tests soil, water samples from Union Carbide

Finds high contamination of pesticides and other toxins

- **Links toxins to production processes of plant.**
- **Laboratory tests find same toxins in groundwater in Bhopal colonies.**
- **Who will be liable for this criminal negligence asks CSE?**

Bhopal, December 1, 2009: For more than 25 years, the Union Carbide (UCIL) factory has been contaminating the land and water of Bhopal. Latest tests show that groundwater in areas even three km away from the factory contains almost 40 times more pesticides than Indian standards.

These are the findings of a study released here today by the New Delhi-based research and advocacy organisation, Centre for Science and Environment (CSE). CSE's Pollution Monitoring Lab (see note on lab below) has tested water and soil samples from in and around the Union Carbide factory, and found high concentrations of pesticides and heavy metals inside the factory as well as in the groundwater outside.

The lab study and its results

UCIL used to manufacture three different kinds of pesticides: Carbaryl (trade name Sevin), Aldicarb (trade name Temik) and a formulation of Carbaryl and gamma-hexachlorocyclohexane (trade name Sevidol). The plant also used heavy metals like mercury and chromium. Most of these products and elements are persistent and toxic. The CSE laboratory chose the same chemicals for its tests.

In October this year, one water and eight soil samples were collected from various places inside the factory. Eleven more water samples came from locations outside, ranging from colonies next to the factory's boundary to those 3.5 km away.

All the samples collected from within the factory were found to be highly contaminated. The waste stored within the premises had Carbaryl content of 9,856 parts per million (ppm) and mercury content of 1,065 ppm. The soil sample near the Sevidol plant had 2,782 ppm of Lindane; soil from solar evaporation pond had chromium content of 1,065 ppm, while that from the Sevin plant had mercury concentration of 8,188 ppm. It must be noted that there is no standard for these pesticides. Surface water samples had a pesticide concentration of 0.2805 ppm – which is 561 times more than the Indian standard.

“The reason this is extremely worrying is because we have found the toxins in the groundwater we have checked from almost 3 km below the factory,” says Chandra Bhushan, associate director, CSE and in-charge of the CSE laboratory. All 11 groundwater samples collected from colonies around the UCIL factory were found to be contaminated with chlorinated benzene compounds and organochlorine pesticides. Carbamates were found in four samples. The concentration of pesticides was 1.1 to 38.6 times higher than the Indian standard. The water sample from a hand-pump near the Chaurasia Samaj Mandir in Shiv Nagar – more than 3 km from the factory – was the most contaminated. It had the highest concentration of Carbaryl (0.011

ppm, 110 times the standard); Lindane (0.004 ppm, 40 times the standard); and mercury (0.024 ppm, 24 times the standard).

Adds Bhushan: "The profile of chemicals found within the UCIL factory and in the waste disposal site of UCIL matches the chemicals found in the groundwater sample in the colonies outside. There is no other source of these chlorinated benzene compounds and pesticides than UCIL."

Speaking at the release of the study report, Sunita Narain, director, CSE, said: "Our findings suggest that the entire site is highly contaminated. The waste stored within the factory is a small part of the total contamination present in the site. The focus of the government to just dispose off the stored waste and ignore the site contamination problem is, therefore, not going to solve the environmental problems from the UCIL factory."

Chronic toxicity: the health implications

"The factory site in Bhopal is leading to chronic toxicity – continuous tiny exposure leading to poisoning of our bodies," explains Narain. "This is different from acute poisoning and so the claim that the factory is not dangerous because people can touch the waste is misleading." The problem, CSE says, is that the chemicals present in the soil of the factory are leaching into the groundwater and leading to slow and deliberate poisoning of residents.

The health impact of this slow poisoning will be enormous, says CSE. Chlorinated benzene compounds (such as di- and tri-chlorobenzene) can affect and damage the liver and blood cells, while organochlorine pesticides can lead to cancers and bone defects. The two key products of UCIL – Carbaryl and Aldicarb – were as deadly. Their health impacts include damage to the brain and nervous system, chromosomal abnormalities etc (for the complete list of health impacts, see *Down To Earth* cover story, page 27).

CSE researchers have found that people living around the accident site continue to suffer from diseases ranging from chronic ailments to abnormalities. No one, however, is certain how much of it is related to the gas release and how much has been exacerbated because of continuing exposure to toxins.

Says Chandra Bhushan: "The Indian Council for Medical Research was asked to conduct long-term epidemiological research right after the disaster, but these studies were summarily discontinued in 1994. The initial reports suggested long-term and deadly health effects on the survivors."

Who will pay for the clean-up?

If this contamination is accepted, the question is, who will pay for the clean-up? If the entire site of the factory needs to be carefully checked and cleaned up, the cost of the operation will be very high. Who will pay for this continuing environmental damage? Dow Chemical Company, which has bought over Union Carbide, says it is not responsible. It wants the High Court to delete it from the list of respondents. Based on letters accessed by RTI activists, it is also clear that there is pressure to dilute the liability of Dow Chemicals, arguing that the company had nothing to do with Union Carbide India Limited, which operated the plant (to see the letters, just visit www.cseindia.org).

This cannot be acceptable, says CSE. The toxins we have found in the factory are related to the production process of the plant. It is clear that UCIL was dumping its waste – of chemicals and pesticides – in the factory compound over the years it operated the factory. Dow must be held responsible. "Its own annual report shows that it has taken on the liability of Union Carbide in the

case of asbestos exposure in the US. Why is it denying this responsibility in India?” asks Sunita Narain.

About CSE's Pollution Monitoring Laboratory

In 2003 and 2006, the Pollution Monitoring Laboratory (PML) had tested pesticide levels in soft drinks (Coca Cola and Pepsi). Following its findings, a Joint Parliamentary Committee was set up by the Central government to evolve criteria for setting standards for such food items. The PML has also conducted tests to determine pesticide residue levels in human blood samples, an endosulfan analysis, and a study of trans fats in edible oils. The lab's full reports, research methodologies and equipments used are available on www.cseindia.org.

- For clarifications and details, please contact Souparno Banerjee (souparno@cseindia.org, 9910864339) or Shachi Chaturvedi (shachi@cseindia.org, 9818750007).
- To access the CSE study report, the Down To Earth cover story and other related information, please visit our website, www.cseindia.org