

NOTES

POISON UNDERGROUND

(We extract below a note which has appeared in "Down to Earth" supplement (15 Aug. 1997) issued by the Centre for Science and Environment, New Delhi, to focus attention on the deteriorating quality of groundwater in most cities of India - Editor)

"If news of pesticides from Yamuna's water ending up in the drinking water of Delhi's residents is alarming, the findings of a recent study can only be nightmarish. Groundwater in the Nation's capital region is already contaminated with pesticides and other toxins, says *Groundwater quality in flood affected areas of Delhi*, a Central Pollution Control Board (CPCB) report published in 1996. The report states that a study of groundwater quality in Delhi conducted by CPCB between December 1994 and June 1995 found alarmingly high levels of pesticides, including a 2.651 microgrammes/litre concentration of total pesticides in Shriram Colony.

The levels of all pesticides, except Aldrin, were found to be higher than the highest levels found in Yamuna from the Tajewala barrage in Haryana to Palla, Delhi by CPCB between December 1994 and March 1996. This corroborates the findings of the Lucknow-based Indian Toxicology Research Centre and the conclusions reported in "Down To Earth" ('Deep and deadly', v.6, No. 4, page 61), which said pesticide concentrations are higher in groundwater than in surface water.

The Indian drinking water standard, BIS 10500 of 1991, says there should be no pesticide in drinking water and the effect of presence of pesticides is toxic. In the absence of alternatives, the permissible limit of pesticides is 1 microgramme per litre. Pre-monsoon data in the CPCB study shows this too has been exceeded in the groundwater at some places in Delhi.

Post-1995 monsoon figures reported by CPCB in the same study also indicate high pesticide levels. In post-monsoon groundwater, "BHC was found exceeding drinking water guidelines value of 0.01 microg/l in all 17 locations... Aldrin was found exceeding the WHO limit in two locations... total pesticides content were exceeding 1.0 microg/l at three locations with reference to BIS standard limit of 1 microg/l for total pesticides" the report adds.

The report reveals the deterioration of groundwater quality in terms of physio-chemical parameters like total dissolved solids, total hardness, calcium, nitrate, sulphate, fluoride, ammonical nitrogen, phenols, boron and heavy metals. It explains that post-monsoon levels of pesticides and toxins are higher because of contamination of surface water and groundwater as waste water and solid waste mixes with flood water.

It also states that as, second to rivers, the main source of drinking water is groundwater, which is easy to extract, it is imperative to safeguard this source from contamination. It is practically impossible to remove contaminants from groundwater. Moreover, as its impact is widespread, it affects a larger number of people and for a longer period of time.

A large part of Delhi's population depends on handpumps and tubewells and uses untreated groundwater for drinking, the report points out. Residents of Vasant Kunj, for example, use untreated groundwater. In Ghazipur, the Municipal Corporation of Delhi supplies groundwater with a dash of chlorination at the best of times. Besides, a number of bottled water manufacturers in Delhi pack groundwater in bottles without removing toxic contaminants like pesticides.

If pesticide contamination of Yamuna water, as reported in CSE's publication *Homicide by Pesticides: What pollution does to our bodies*, is worrying, the presence of pesticides in groundwater should shock all concerned into action."