Mercury: An overview and work done by IITR

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Facts about the mercury from thermal power plants in India

- **Various studies indicate that mercury in Indian coal varies from 0.09 to 0.487 ppm (average 0.272 ppm)**
- **Power sector in India is estimated to consume around 415 million tonnes of coal in 2011-2012 *.**
- **Total mercury pollution potential from thermal power plants in India can be estimated to be more than 100 tonnes per annum considering the average mercury level in coal as 0.272 ppm.**
- **About 58.05% mercury is in gaseous form, 2.4% in particulate form, 32.5% is in ash. Remaining 7.05 % can not be accounted for.**
- *** -** ***TERI, Energy Policy 31 (2003) 319–331***

- Approximately 100 million tonnes of flyash is generated by thermal plants in India.
- The disposal of flyash on land in dykes leads to contamination of air, water and soil by heavy metals including mercury.
- Mercury in the gaseous form settling on the soil may get into the crops and vegetation.
- Mercury leaching from the flyash dykes may contaminate the water bodies.

Map of Madhya Pradesh Showing Singrauli area

Mercury contamination in Singrauli area:

IITR, Lucknow (formerly ITRC) undertook a study sponsored by NTPC in 1996-97 to monitor the mercury contamination in various compartments of the environment and found that:

- 66.3% of the subjects from Singrauli had mercury more than 5 ng/ml in blood as compared to 10.5% from control area.
- 47.9% subjects from Singrauli area had more than 1 µg/g mercury in hair as compared to 24.5 % from control poulation.
- Only six samples of drinking water out of 40 samples collected from the region showed mercury more than the permissible limits (0.001 ppm)

- Out of 22 milk samples collected from the area, 19 showed mercury levels higher than the permissible levels of 3 µg/L.
- Some of the vegetable and fish samples from the area also showed higher mercury levels.
- Although many of the clinical symptoms were observed in the 1200 subjects from the area, none of them could be directly correlated to the mercury contamination.
- It was recommended that a more detailed study covering a larger population in the area is needed to get a in depth view on the problem.

Mercury contamination in Korba

In a Ministry of Environment & Forests sponsored study by IITR in 2007, following observations were made:

- Most of the 103 volunteers examined for their blood and urinary mercury levels showed higher levels than their control counterparts, but the levels were within the WHO permissible limits.
- Mercury levels in cereals and grains were also higher than those from the control area, but they were within the FDA permissible limits.
- Some of the water samples from the area had higher than the permissible limits of mercury.
- It was suggested that periodical monitoring of the environmental samples for mercury should be done considering the bioaccumulation property of the metal.