Bhopal Gas Tragedy

Posted at: 04/12/2024

Bhopal Gas Tragedy: Forty Years of Toxic Legacy

Context

Forty years after the **Bhopal gas disaster** (December 2-3, 1984), several hundred tonnes of toxic waste remain around the Union Carbide plant, posing serious environmental and health risks.

Background

- Despite efforts by locals, activists, and directives from the **National Green Tribunal** and the **Supreme Court**, the Madhya Pradesh government has only managed to dispose of a small fraction of the waste.

Key Points on the Disaster

1. **Union Carbide Plant Operations**
    - Established in the 1960s to produce **carbaryl insecticide** using methyl isocyanate (MIC).
    - MIC, a highly toxic compound, reacts violently with water, releasing heat and vapors.
2. **The Gas Leak**
    - On **December 2, 1984**, water entered an MIC storage tank, causing it to boil.
    - Cooling systems were diverted, allowing toxic vapors to escape and spread into the environment.
    - MIC exposure caused eye irritation and severe respiratory issues, especially as most victims were asleep at the time.
    - The **Union Carbide Corporation** has never disclosed the exact composition of leaked gases, hindering effective medical responses.
    - Some reports indicated the presence of **hydrogen cyanide**, raising further concerns.

Toxins Present at the Site

A **1999 Greenpeace report** identified toxic substances, including:

- **Heavy Metals**: Mercury, chromium, copper, lead, and nickel.
- **Organic Compounds**: Hexachlorobutadiene, chloroform, carbon tetrachloride, and trichlorobenzene.

Impact of Heavy Metals

- **Mercury**: Damages organs, disrupts cellular functions.
- **Chromium**: Essential at low doses but toxic at high levels, causing immune and genetic damage.
- **Lead**: Disrupts photosynthesis in plants, damages animal cells, and hinders energy production.
- **Nickel**: Linked to cancers of the lungs, nose, and sinuses.

Impact of Organic Compounds

- **Hexachlorobutadiene**: Possible carcinogen; causes liver damage, kidney cell destruction, and brain activity inhibition.
- **Chloroform**: Affects the central nervous system, leading to fainting or death at high concentrations.
- **Carbon Tetrachloride**: Highly toxic; damages vision, nerves, and heart function.
- **Trichlorobenzene**: Accumulates in fatty tissues, damaging the liver and kidneys.

Conclusion

The lingering toxic waste from the Bhopal disaster remains a stark reminder of the environmental and human toll of industrial negligence. Effective disposal and accountability are urgently needed to address the lasting impacts.