



## Sixth Anniversary of the Minamata Convention

**For Prelims:** Minamata Disease, United Nations Environment Programme, World Health Organization, Global Environment Facility, planetGOLD program, Methylmercury

**For Mains:** Sources of Mercury Pollution, Minamata Convention.

**Source:** [UNEP](#)

### Why in News?

The **sixth anniversary of the [Minamata Convention on Mercury](#)** is a reminder of global efforts to combat the toxic effects of mercury.

- On this occasion, the **[United Nations Environment Programme \(UNEP\)](#)** reflects on the ongoing campaign to **eradicate the use of mercury in small-scale gold mining**.
- This practice, despite its economic significance, poses **severe risks to both miners and the environment** due to the hazardous properties of mercury.

### What is the Minamata Convention?

- The **Minamata Convention on Mercury** is a global treaty to protect human health and the environment from the adverse effects of mercury and its compounds.
  - It was agreed at the **fifth session of the Intergovernmental Negotiating Committee in Geneva, Switzerland** 2013.
- Controlling the anthropogenic releases of mercury throughout its lifecycle is one of the key obligations under the Convention.

### What is Mercury Pollution?

- **About Mercury:**
  - Mercury is a **naturally occurring element** found in the Earth's crust. It is considered by the **[World Health Organization \(WHO\)](#)** as one of the top **ten chemicals** or groups of chemicals of major public health concern.
- **Major Applications of Mercury:**
  - **Thermometers and Barometers:**
    - Mercury's **high coefficient of thermal expansion** and easy visibility make it suitable for use in traditional thermometers and barometers.
  - **Chemical and Mining Processes:**
    - Mercury has been used in various chemical and mining processes, including the production of chlorine and mining of gold.

- **Electronics and Electrical Switches:**
  - Mercury-wetted switches are used in various electrical applications because **mercury's conductivity and low resistance** make it suitable for creating a reliable electrical connection.
  
- **Sources of Mercury Pollution:**
  - **Natural Sources:**
    - **Volcanic eruptions** release small amounts of mercury.
    - **Erosion of rocks** and soil can release mercury into water bodies.
  - **Anthropogenic Sources:**
    - **Artisanal and Small-Scale Gold Mining (ASGM):** ASGM is a major source of mercury pollution, where mercury is used to extract gold from ore.
      - Mercury is used to extract gold particles from ores, **creating amalgams** that are later heated to evaporate the mercury, leaving behind gold.
      - Artisanal gold mining **operations are responsible for 37% of global mercury pollution.**
    - **Industrial Processes:** Various industries, such as **chlorine production, cement manufacturing, and waste incineration**, emit mercury.
      - The cement industry is responsible for around **11% of global anthropogenic mercury emissions.**
    - **Waste Disposal:** Improper disposal of e-waste products containing mercury, such as **fluorescent bulbs and batteries**, leads to mercury leaching into the environment.
  
- **Associated Impact:**
  - Methylmercury accumulates in aquatic organisms like fish. People primarily come into contact with **methylmercury** through the **consumption of fish and shellfish.**
    - This compound carries a **higher risk of causing Minamata disease**, a condition characterized by **sensory impairment, tremors, and both auditory and visual deficits.**
  - This illness was initially observed in the residents of **Minamata Bay, Japan**, who consumed mercury-contaminated fish due to industrial waste pollution.

**Note: Methylmercury and ethylmercury differ significantly.** While methylmercury is linked to health issues, **ethylmercury is utilized as a preservative** in certain vaccines and is **not associated with health concerns.**

## Way Forward

- **Mercury-Removing Filters:** Innovative mercury-removal filters for industrial emissions, wastewater treatment, and consumer products can be designed and deployed.
  - These filters could **selectively capture and adsorb mercury particles** from air and water streams.
- **Phytoremediation:** Phytoremediation, **allows plants to absorb and accumulate mercury from soil, water, or sediments.** These plants can then be harvested and safely disposed of, effectively removing mercury from the environment.
- **Implementing planetGOLD Program:** There is a need for global implementation of the **planetGOLD program**, led by **UNEP**, which seeks to eliminate mercury from artisanal gold mining and create safer working conditions. It operates under the **Minamata Convention on Mercury.**
  - Funded by the Global Environment Facility, the program provides financial and technical support to help miners transition away from mercury use.
  - planetGOLD's mercury-free processing plant in Burkina Faso serves as a model for transitioning away from mercury.

**Q. Indiscriminate disposal of used fluorescent electric lamps causes mercury pollution in the environment. Why is mercury used in the manufacture of these lamps? (2010)**

- (a)** A mercury coating on the inside of the lamp makes the light bright white
- (b)** When the lamp is switched on, the mercury in the lamp causes the emission of ultra-violet radiations
- (c)** When the lamp is switched on, it is the mercury which converts the ultra-violet energy into visible light
- (d)** None of the statement given above is correct about the use of mercury in the manufacture of fluorescent lamps

**Ans: (b)**

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