Mercury Pollution

For Prelims: Minamata Convention on Mercury, Mercury and its characteristics.

For Mains: Concerns related to Mercury Pollution, Environmental Pollution & Degradation.

Why in News?

Recently, Indonesia has **introduced a global declaration** that calls on parties to the **Minamata Convention on Mercury** to tackle illegal trade of mercury.

- The declaration was read in Nusa Dua, Bali, where **Indonesia is hosting the fourth Conference of Parties (COP4)** to the Minamata Convention on Mercury.
- The conference is being held from 21st to 25th March 2022.

What are the Objectives of the Declaration?

The non-binding declaration calls upon parties to:

- **Develop practical tools and notification** and information-sharing systems for monitoring and managing trade in mercury.
- **Exchange experiences and practices relating to combating illegal trade** in mercury, including reducing the use of mercury in artisanal and small-scale gold mining.
- **Share examples of national legislation and data** and information related to such trade.

What is the Minamata Convention on Mercury?

- 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.
- The **Convention also addresses interim storage of mercury** and its disposal once it becomes waste, sites contaminated by mercury as well as health issues.
- The Convention **covers all aspects of the life cycle of mercury, controlling and reducing mercury** across a range of products, processes and industries. This includes controls on:
    - mercury mining
    - the manufacture and trade of mercury and products containing mercury
    - disposal of mercury waste
    - emissions of mercury from industrial facilities.
- Countries that have **ratified the Convention are bound by international law** to put these controls in place.
    - **India has ratified the Convention.**

What do we know about Mercury?

- **About:**
  - Mercury is a **naturally occurring element** that is found in air, water and soil.
  - Exposure to mercury – **even small amounts – may cause serious health problems,** and is a threat to the development of the child in utero and early in life.
  - Mercury may have **toxic effects on the nervous, digestive and immune systems,** and on lungs, kidneys, skin and eyes.
  - Mercury is considered by the **World Health Organisation (WHO)** as one of the **top ten chemicals or groups of chemicals** of major public health concern.
  - People are mainly exposed to **methylmercury, (an organic compound)** when they eat fish and shellfish and are more vulnerable to Minamata disease.
    - **Minamata Disease:** A disorder **caused by methylmercury poisoning** that was first described in the inhabitants of Minamata Bay, Japan and resulted from their eating fish contaminated with mercury industrial waste.
      - The **disease is characterized by peripheral sensory loss,** tremors, and both hearing and visual loss.
    - Methylmercury is **very different from ethylmercury**. Ethylmercury is used as a preservative in some vaccines and does not pose a health risk.
- **Types of Sources:**
  - **Natural sources:** **Volcanic eruptions** and emissions from the ocean.
  - **Anthropogenic (human-caused) emissions:** It includes mercury that is **released from fuels or raw materials,** or from uses in products or industrial processes.
    - Globally, **Artisanal and Small-Scale Gold Mining (ASGM)**: It is the largest source of anthropogenic mercury emissions (37.7%), followed by stationary combustion of coal (21%).
    - Other **large sources of emissions** are non-ferrous metals production (15%) and cement production (11%).
    - Globally, **10-20 million people work in the ASGM sector** and many of them use mercury on a daily basis.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

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)

Source: DTE