Fly Ash

Why in News

National Thermal Power Corporation (NTPC) Limited has invited **Expression of Interest (EOI) for sale of fly ash,** in its endeavour to **achieve 100% utilization of fly ash,** from the designated plants of the Middle East and other regions.

Fly Ash is a **byproduct from burning of coal** in the thermal power generation.

Key Points

- **Fly Ash:**
  - **About:**
    - It is **called fly ash because** it is transported from the combustion chamber by exhaust gases.
    - It is collected from the exhaust gases by **electrostatic precipitators or bag filters.**
      - An **electrostatic precipitator (ESP)** is defined as a **filtration device** that is used to remove fine particles like smoke and fine dust from the flowing gas.
      - It is the commonly used device for air pollution control.
  - **Composition:**

    Fly ash includes substantial amounts of silicon dioxide (SiO_2), aluminium oxide ($Al2O_3$), ferric oxide ($Fe2O_3$) and calcium oxide (CaO).
  - **Properties:**
    - **Resemble Portland cement** but is chemically different.
      - Portland cement is a binding material in the form of a finely ground powder that is manufactured by burning and grinding a **mixture of limestone and clay.**
      - Its chemical composition includes **calcium silicates, calcium aluminate and calcium aluminoferrite.**
    - Exhibit **cementitious** properties.

      A cementitious material is one that hardens when mixed with water.
  - **Uses:**

    It is used in concrete and cement products, road base, metal recovery, and mineral filler among others.
  - **Harmful Effects:**
    - Fly ash particles are **toxic air pollutants.** They can trigger heart disease, cancer, respiratory diseases and stroke.
    - When combined with water they **cause leaching of heavy metals** in ground water.
    - It also **pollutes the soil,** and affects the root development system of trees.

- **Fly Ash Utilisation:**
    - NTPC has **collaborated with Cement manufacturers** around the country to supply Fly Ash.
    - To promote the use of Fly Ash bricks in building construction, NTPC has set up **Fly Ash brick manufacturing Plants at its Coal based Thermal Power Plants.**
        - These bricks are being **utilized in Plants as well as township construction activities** exclusively.
        - On average, 60 million Fly Ash bricks are being manufactured annually by NTPCs own Fly Ash brick Plants.
    - As per the MoEF&CC directives, NTPC stations must keep at least **20% of total Fly Ash produced** in reserve for the issue to Fly Ash brick/blocks/tiles manufacturers and issuing Fly Ash free of cost to them.

        About 9% of the total Fly Ash produced in NTPCs stations, is being utilized by Fly Ash bricks/blocks and tiles manufacturing units annually.
    - During the year 2020-21, almost 15 NTPC stations supplied Fly Ash to various Road projects and Ash utilization crossed by nearly 20 million tonnes.
    - Over the last five years the fly ash utilisation has grown up by 80% in the country.
    - **Pradhan Mantri Awas Yojana (Urban)** has focused on new construction technologies such as **using fly ash bricks** that are innovative, and environmentally friendly.
    - Even state governments have come out with their Fly ash utilization policies, e.g. **Maharashtra was the first state to adopt the policy.**
    - A **web portal for monitoring of fly ash generation and utilization and a mobile based application** titled **"ASHTRACK"** has been launched by the Government.
    - **GST** rates on fly ash and its products have been reduced to 5%.

NTPC

- NTPC Ltd. is a **central Public Sector Undertaking (PSU) under the Ministry of Power.**
- **Aim:** To provide reliable power and related solutions in an economical, efficient and environment-friendly manner, driven by innovation and agility.
- It became a **Maharatna company** in May 2010.
- India's largest power generating company.

Source:PIB