Mains Practice Questions

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Q. Discuss the challenges associated with pollution due to the thermal power plants in India. Suggest some measures to tackle these challenges. (250 words)

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Approach:-

- In introduction write in brief the different types of pollution problems from thermal plants.
- Elaborate the challenges associated with pollution due to the thermal power plants.
- Suggest some measures to tackle these challenges.

Introduction

Pollution due to thermal power plants:-

- **Largest emitter of mercury:** Typical power plant emits 90 % of its mercury into the air and 10 percent on land.
- **Air Pollution**
  - **From point source:** Particulates matter, Gaseous emission - Sulphur dioxide, oxides of nitrogen, carbon monoxide, carbon dioxide, Hydrocarbon.
  - **From non-point source:** Transportation of coal, Loading/unloading of fuel, Coal storage yard, Fly ash handling & Transportation, Coal storage yard
- **Water pollution:** Plant Effluent, Coal Handling Plant Dust Suppression, Ash handling, Effluent from oil handling and transformer areas, Power House and Turbine Area Effluent.
- **Land Degradation:** Untreated air and water pollutants from coal power plants affect the water and the flora and fauna of adjoining areas making them unfit for living or livelihood activities
- **Noise Pollution:** Regular exposure to such high noise levels emanating from power plants from the usage of equipment like boilers, turbines and crushers, affects people working in the plants.
  India's coal use represents just over 54% of the present energy mix, and the fuel will continue to retain a high share of the overall generation.

Body

Challenges associated with pollution due to the thermal power plants:

- **Efficiency of Indian power plants:** India's thermal power plants still are inefficient and also one of the most polluting in comparison to the other industrial countries. Increasing the efficiency and adaptability of such plants is a challenge.
- **Pollution-control technology:** India lacks in most advanced technology for thermal power plants. This is due to lack of scientific and technology research environment.

- **Huge investment cost:** The exact investment needed by a plant would depend on the combination of upgradation and new installation required which in turn would depend on existing abatement technology, actual emissions, applicable norms and age of the plant. The challenge is to identify the right instruments to fund the entire exercise.
- **Power for all:** There is a twin challenge, meeting the target of pollution control and the wider social objective of extending electricity access to the unreached.
- **Re-use of power plant byproducts** like Fly Ash, Sulphur content is not done to its full potential etc. There could be a positive spin-off from sulphur-removal, since it can yield commercially significant quantities of synthetic gypsum.
- **Health Impacts:** These pollutants make severe impacts on the health, cause respiratory ailments and affect well-being of people. To achieve a healthy environment for all living being is the most challenging.

Some actions/steps suggested by NITI Aayog can be used to tackle the above challenges:-

- Expedite strategic decommissioning of old and inefficient power plants: These inefficient power plants should be replaced by efficient super-thermal plants or with power generators that are based on renewable energy.
- Upgrade efficient thermal power plants to meet the requirements of dynamic operation:
- Push rooftop solar and distributed generation
- Ensure high grade low polluting coal to the power plant: Availability and usage of high grade coal will allow power plants to operate at a high efficiency point.

Conclusion

In the first half of 2015, the Ministry of Environment, Forest and Climate Change (MoEFCC) issued drafts of stricter norms for emissions and water consumption for coal-based thermal power sector. However implementation of such norms will be a key in reducing the pollution.