National Clean Air Programme

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Why is in news?

Delhi's Air Quality Index (AQI) is touching 500. The prevailing air pollution crisis in India in general and the National Capital Region (NCR) in particular is a concern for everyone — and AQI has firmly established itself in the household vocabulary. A range of restrictions including the odd-even scheme have been enforced in Delhi by the local administration while the Bombay High Court has taken suo motcognisance of the poor air quality in Mumbai.

About:

Air pollution is generally on the decline in advanced economies and rising in emerging and industrialising economies.

In the aggregate, the WHO cautions that nearly 90 per cent of the global population breathes air that exceeds prescribed limits and contains high levels of pollutants. The **worst affected are the low- and middle-income countries.**

Major pollutants:

particulate matter (PM10 and PM2.5),

a mix of solid and liquid droplets arising mainly from fuel combustion;

nitrogen dioxide from road traffic;

ozone at ground level caused by the reaction of sunlight with pollutants from industrial facilities and vehicle emissions; and

sulphur dioxide, an invisible gas from burning fossil fuels like coal.

Findings of WHO:

Recognising a growing global concern about deteriorating air pollution, **the World Health Assembly Resolution 68.8, 'Health and the environment: Addressing the health impact of air pollution'**, was endorsed by 194 member states in 2015.

An estimated **eight million deaths globally** were attributed by the WHO **to air pollution**.

Delhi was flagged as the **most polluted city** with an annual mean of fine particulate matter of 153 ?g/m3 compared to 17 ?g/m3 in Paris and 8 ?g/m3 in Toronto.

India featured **among the top 15 countries** with the highest annual mean of **fine particulate matter (PM2.5).**

Afghanistan, Bangladesh, China, and Pakistan also figured in this list, highlighting the vulnerability in this part of the world.

The Resolution called for better policies to promote cleaner public transit and clean-energy sources, and reduction of emissions of carbon dioxide, methane, and black carbon.

Measurement of AQI is done by air monitors and air pollutant concentration over a specified averaging period. The results are then grouped into ranges; each range is assigned a descriptor, a colour code, and a standardised public health advisory.

India's National Air Quality Index Standard (NAQI) has a range of six categories with "severe" representing values of 430 and above. PM2.5 levels in Delhi are **about 15 times higher than the prescribed WHO guidelines**.

Health impacts:

Associated with oxidative stress and inflammation in human cells, air pollution plays a key role in the genesis of **chronic diseases and cancer**.

Public health consequences include cancer, cardiovascular disease, respiratory diseases, diabetes mellitus, obesity, and reproductive, neurological, and immune system disorders.

A third of the deaths from stroke, lung cancer and heart disease have been linked to air pollution; an equivalent effect to smoking tobacco, and higher than the effects of over-consumption of salt.

Air pollution has been linked to higher chances of developing several neurological disorders including Parkinson's disease, Alzheimer's disease, and other dementias.

Children are especially vulnerable owing to a set of unique reasons: Air pollution affects their developing lungs; neurotoxic compounds in air pollution can affect children's developing brains and cognitive development; they inhale more air per unit of body weight than adults; and, babies born to women who exposed to air pollution during their pregnancy are more likely to be premature and low birth weight.

NCAP:

India's National Clean Air Programme (NCAP) was **launched in 2019** by the **Ministry of Environment, Forest and Climate Change** (MoEFCC) to prepare clean air action plans.

It aims to achieve a **20-30 per centreduction in concentrations of PM10 and PM2.5 by 2024** (base year, 2017).

It encompasses a **wide range of specific interventions** including reduction of vehicular pollution through regulatory norms, promotion of public transport and improvements in roads and bridges; tackling industrial emissions; notification of eight waste management rules; monitoring of ambient air quality; and prevention and control of paddy stubble burning.

Goal:

Goal of NCAP is to meet the prescribed annual average ambient air quality standards at all locations in the country in a stipulated timeframe.

NCAP targets to achieve **reduction in Particulate Matter (PM10) levels up to 40%** or achievement of national standards (60 microgram/cubic meter) **by 2024 in targeted 131 cities** of 24 States, taking 2017 as the base year for the comparison of concentration.

Objectives:

?To augment and evolve effective and proficient ambient air quality monitoring network across the country for ensuring comprehensive and reliable database

To have efficient data dissemination and public outreach mechanism for timely measures for prevention and mitigation of air pollution and for inclusive public participation in both planning and implementation of the programmes and policies of government on air pollution

To have feasible management plan for prevention, control and abatement of air pollution.

Approach:

Collaborative, Multi-scale and Cross-Sectoral Coordination between relevant Central Ministries, State Government and local bodies.

Focus on no Regret Measures, Participatory and Disciplined approach

Initiatives under NCAP:

Augmenting Air Quality Monitoring Network:

National air quality monitoring network to be revisited, past data to be analyzed for rationalization of monitored parameters, and monitoring needs be reassessed for augmenting the monitoring network adopting optimum blending of techniques such as manual, continuous, sensor & satellite based techniques.

Air Quality Management Plan for 100 Non-Attainment Cities:

The city action plans need to be guided by a comprehensive science based approach involving (i) identification of emission sources; (ii) assessment of extent of contribution of these sources; (iii) prioritizing the sources that need to be tackled; (iv) evaluation of various options for controlling the sources with regard to feasibility and economic viability; and (v) formulation of action plans.

Indoor Air Pollution Monitoring & Management:

It refers to the physical, chemical, and biological characteristics of air in the indoor environment within a home, building, or an institution or commercial facility.

National Emission Inventory:

An emission inventory is an accounting of the amount of pollutants discharged into the atmosphere.

An emission inventory usually contains the total emissions for one or more specific air pollutants, originating from all source categories in a certain geographical area and within a specified time span, usually a specific year.

Emissions and releases to the environment are the starting point of every environmental pollution problem.

Extending source apportionment studies to all non-attainment cities:

Source apportionment study, which is primarily based on measurements and tracking down the sources through receptor modelling, helps in identifying the sources and extent of their contribution.

Source apportionment studies which have been initiated in six major cities viz. (i) Delhi; (ii) Mumbai; (iii) Chennai; (iv) Bangalore; (v) Pune; and (vi) Kanpur at present is planned to be extended to all 94 non-attainments.

Institutional Framework:

An effective institutional framework which basically refers to formal organisational structures is the precondition for the successful implementation of pollution specifically air pollution related intervention tools and therefore needs to be considered in particular.

Odd even scheme:

The NCAP recommends the **odd-even scheme with minimal exemptions for Delhi** in case of Severe+ conditions. There seems to be a consensus among engineering experts that this may not be a good long-term measure.

A study of the 2016 restrictions observed an average reduction of PM2.5 by 5.73 per cent and that of PM1.0 by 4.70 per cent.

PRANA Portal:

The Ministry also launched recently a **national portal** for the National Clean Air Program **"PRANA" -the Portal** for Regulation of Air Pollution in Non-Attainment Cities.

It provides all information related to various policies or programs or schemes or activities of the stakeholders along with the progress made towards improvement in air quality across the country.

This portal will be a platform for monitoring and feedback on all efforts made for air quality improvement.

International Cooperation including sharing of International Best Practices on Air Pollution

Review of ambient air quality standards and emission standards

NGT's Directives to NACP:

To **reduce the timeline** – As under NACP, the ministry proposed to reduce air pollution by 20-30 percent till 2024; NGT has directed to reduce it. In place of 20-30 percent of air pollution reduction; the target percentage should be increased.

Make a **shift to e-vehicles** and CNG vehicles.

To **take a review of**: Intensification of the public transport system; Mechanical cleaning of roads; Enhancement of public parking facilities; Improvement in fuel quality, and Traffic management

State pollution control boards to assess and **install Ambient Air Quality Monitoring Systems** within six months.

Central Pollution Control Board to design a model for source apportionment and carrying capacity assessment within two months which may be replicated for all the non-attainment cities.

Source Apportionment: It is the practice of deriving information about pollution sources and the amount they contribute to ambient air pollution levels.

Issues faced in NCAP:

The pollution reduction target in these cities is **not 'legally binding'** on respective states.

Unsatisfactory performance: The national analysis of PM2.5 levels in cities for which data is available found that between 2019 and 2021, only 14 of 43 (NCAP) cities registered a 10% or more reduction in their PM2.5 level between 2019 and 2021.

Funding issue: For disbursing funds, the Central Pollution Control Board, which coordinates the programme, only considers levels of PM10, the relatively larger, coarser particles. However, PM2.5, the smaller, more dangerous particles, aren't monitored as robustly in all cities, **mostly due to the lack of equipment**.

Compartmentalizing rural-urban areas: The scheme **focuses on air pollution mitigation within cities** while ignoring rural air pollution thus compartmentalizing both. But cities like Delhi are significantly affected by rural air pollution, hence making purely city-based efforts less ineffective.

Sluggish improvement: The progress is even more sluggish in equipping all manual stations with PM2.5 monitoring, where only 261 stations have PM2.5 monitoring facilities.

No carrying capacity studies: None of the 132 non-attainment cities has completed their carrying capacity studies. Carrying capacity is the region's ability to accumulate and disperse emissions while maintaining breathable air quality.

Way forward:

For successful implementation of the action plan, there is an **urgent need for cooperation and coordination** among state agencies and technical supervision by expert Institutions.

It is necessary to **adopt regional air quality planning** for all cities and regions to improve overall air quality.

A Large number of NCAP and non-NCAP cities need a substantial reduction in PM2.5 levels to meet the national ambient air quality standards in all climatic zones.

State action plans under NCAP need to break the silos between NCAP and non-NCAP cities for region-wide air quality improvement and reduce emissions from industry, vehicles, waste, and solid fuels in households across all regions

Performance assessment also requires strong data quality control and standardized protocol for reliable and credible assessment of air quality

Promote some other steps to preserve clean air includes implement afforestation, say no to plastic use, turn off the lights when not in use, use public transport, recycle and reuse, etc.