GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

RAJYA SABHA
UNSTARRED QUESTION No. 1819
TO BE ANSWERED ON 16.03.2023

Environment-friendly buildings and eco-restoration parks in the country

1819. SHRI R. GIRIRAJAN:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

(a) whether Government has taken appropriate steps for the construction of environment-friendly buildings and eco-restoration parks, especially in the top 100 cities and to reduce pollution in the country;
(b) if so, the details thereof;
(c) whether Government is aware of the imminent threats to people living in cities due to increasing pollution and declining air quality, the details thereof; and
(d) whether Government has taken steps to prevent polluting activities causing damages to environment, if so, the details thereof and the total funds allocated therefor in the last five years, year-wise?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(SHRI ASHWINI KUMAR CHOUBEY)

(a) &(b):
National Mission on Sustainable Habitat (NMSH) launched by Ministry of Housing and Urban Affairs (MoHUA) has identified five thematic areas, namely (i) Energy and Green Building, (ii) Urban Planning, Green Cover and Biodiversity, (iii) Mobility and Air Quality, (iv) Water Management, and (v) Waste Management.

The first thematic area "Energy and Green Buildings" focuses on reducing the energy consumption for lighting, heating, and cooling, etc. in India's real estate sector and shifting to cleaner renewable energy sources through adoption of green building technologies. Key mitigation and adaptation strategies recommended under this area include undertaking energy audit of all municipal services, including water supply, sewage, and storm water management on an annual basis and promoting renewable energy, and 100% installation of energy-efficient streetlights. The strategies recommended under Energy and Green Building are provided at **Annexure-I**. Further, BEE has launched a scheme 'Star Rating of commercial buildings' with the objective of building a foundation for enhancing energy efficiency in buildings. Besides, the Green Rating for Integrated Habitat Assessment (GRIHA) stipulates green building guidelines for both new and existing buildings.

MoHUA has allocated Rs. 176.8 billion for development and restoration of green spaces and parks under the Scheme AMRUT (Atal Mission for Rejuvenation and Urban Transformation). So far, 1,770 parks have been developed at a cost of Rs. 9.9 billion.

Further, National Clean Air Programme (NCAP) allows the development of open spaces and parks in 131 cities as part of implementation of City Action Plans to improve air quality.

(c)&(d):
Ministry of Environment, Forest and Climate Change (MoEFCC) launched National Clean Air Programme (NCAP) in January, 2019 with an aim to improve air quality in 131 cities (non-attainment cities and Million Plus Cities in 24 States by engaging all stakeholders. The programme envisages to achieve reductions up to 40% or achievement of National Ambient Air Quality Standards for Particulate Matter10 (PM 10) concentrations by 2025-26 over baseline2017-18.NCAP focuses on preparation and implementation of National, State and City level action plans of the targeted 131 cites. Year-wise details of funds provided to these 131 cities since the launch of NCAP are enclosed at **Annexure-II**. Details of air quality of 131 cities in the FY 2021-22 and the baseline of FY 2017-18 in terms of PM10 concentrations are provided at **Annexure-III**.

Details of measures taken by the Government to improve air quality are provided at **Annexure-IV**.

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Annexure-I

Strategies recommended to facilitate the development of sustainable habitats

i. Undertake energy audit of all municipal services, including water supply, sewage, and storm water management, on an annual basis.

ii. Promote 100% installation of energy-efficient streetlights and use of renewable energy operated streetlights.

iii. Promote installing renewable energy systems in buildings (premises), including all municipal corporation buildings, to reduce the dependency on fossil fuels.

iv. Integrate ECBC 2017 for all new municipal buildings and Eco-Niwas Samhita 2018 for residential buildings.

v. Green building guidelines should be integrated into development control regulations and building rules/bye laws and made mandatory for all new constructions of more than 20,000 sq.m area.

vi. Promote roof cooling techniques within new developments in peri urban areas for all new constructions of more than 20,000 sq. m area.

vii. Rating systems notified in Development Control Regulations (DCRs)/ General Development Control Regulations and building rules/ bye laws to be made mandatory for all new constructions of more than 20,000 sqm. area.

viii. Integrate norms and standards to address climate risks (heat, floods, extreme rainfall, cyclones & storm surges, water scarcity, etc.) in Model Building Bye- laws, 2016 and National Building Code, 2016 for adoption by cities. Develop promotional/penalty schemes available for code compliance, pre-certification, certification of green buildings.

ix. All Municipal Corporations with a 10 lakh plus population should Institute a green building action cell for knowledge creation, public awareness, empanelling green building vendors, designing green building schemes and their promotions, verification, and faster approvals for green buildings in the city. Develop a high-level green building committee/equivalent comprising ex-officio members from municipal corporation, smart city SPV, UDD, PWD, Green building certification agencies, and civil engineering/architect's membership association. The committee will provide strategic advice to promote and adopt energy efficient buildings and green buildings in the city.

x. Water harvesting should be mandated to reduce surface runoff and reduce water scarcity.

Annexure-II: Year-wise details funds released to 131 Non-attainment cities and Million Plus Cities under National Clean Air Programme (NCAP)

(Amount in crore)

Details	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23 (till 10th March)	Total
XVth Finance Commission Air Quality Performance Grant to 49 Million Plus Cities	-	4400.00	2025.00	1566.44	**7991.44**
Funding to remaining 82 cities by MoEFCC	224.92	150.52	96.62	452.18	**924.24**
Total	**224.92**	**4550.52**	**2121.62**	**2018.62**	**8915.68**

Annexure-III:Ambient Air Quality status of 131 Non-Attainment Cities under NCAP interms of PM10 Concentrations

State	Sl. No.	Cities	Average concentrations PM_{10} ($\mu g/m^3$)	
			2017-18	2021-22
			Annual Ambient Air Quality Standard for PM10: 60 $\mu g/m^3$	
Andhra Pradesh	1	Anantpur	78	52
	2	Chittur	70	49
	3	Eluru	72	65
	4	Guntur	66	58
	5	Kadapa	75	54
	6	Kurnool	79	61
	7	Nellore	64	55
	8	Ongole	65	52
	9	Rajamahendrav aram	85	68
	10	Srikakulam	69	75
	11	Vijayawada	91	67
	12	Visakhapatnam	76	98
	13	Vizhianagaram	72	71
Assam	14	Guwahati	103	103
	15	Nagaon	82	104
	16	Nalbari	87	99
	17	Silchar	49	45
	18	Sivasagar	73	47
Bihar	19	Patna*	172	145
	20	Gaya*	79	97
	21	Muzaffarpur*	147	153
Chandigarh	22	Chandigarh*	114	97
Chattisgarh	23	Korba	57	61
	24	Durg Bhilainagar	86	58
	25	Raipur	70	61
Delhi	26	Delhi*	241	196
Gujarat	27	Ahmedabad	164	113
	28	Rajkot	150	116
	29	Surat	130	100
	30	Vadodara	133	121
Haryana	31	Faridabad*	-	209
Himachal Pradesh	32	Baddi	174	132
	33	Damtal	55	64
	34	Kala Amb	118	114
	35	Nalagarh	146	84
	36	Paonta Sahib	84	90
	37	Parwanoo	66	35

State	Sl. No.	Cities	Average concentrations PM_{10} ($\mu g/m^3$)	
			2017-18	2021-22
			Annual Ambient Air Quality Standard for PM10: 60 $\mu g/m^3$	
	38	Sunder Nagar	78	47
Jammu& Kashmir	39	Jammu	157	170
	40	Srinagar	-	111
Jharkhand	41	Dhanbad*	315	235
	42	Jamshedpur*	135	110
	43	Ranchi*	141	110
Karnataka	44	Bengaluru	92	67
	45	Devangere	74	57
	46	Gulburga / Kalaburagi	55	84
	47	Hubli-Dharwad	79	68
Madhya Pradesh	48	Bhopal	112	116
	49	Dewas	83	81
	50	Gwalior	126	109
	51	Indore	82	103
	52	Jabalpur	101	115
	53	Sagar	73	79
	54	Ujjain	93	114
Maharashtra	55	Aurangabad	75	86
	56	Akola	111	64
	57	Amravati	102	66
	58	Badlapur	160	94
	59	Chandrapur	118	104
	60	Greater Mumbai	161	106
	61	Jalgaon	70	59
	62	Jalna	99	93
	63	Kolhapur	89	81
	64	Latur	82	57
	65	Nagpur	100	68
	66	Nashik	82	59
	67	Navi Mumbai	88	97
	68	Pune	102	85
	69	Sangli	87	60
	70	Solapur	81	60
	71	Thane	138	130
	72	Ulhasnagar	153	77
	73	Vasai virar	-	174
Meghalaya	74	Byrnihat	175	181
Nagaland	75	Dimapur	142	84

State	Sl. No.	Cities	Average concentrations PM_{10} ($\mu g/m^3$)	
			2017-18	2021-22
			Annual Ambient Air Quality Standard for PM10: 60 $\mu g/m^3$	
	76	Kohima	127	69
Odisha	77	Angul	97	97
	78	Balasore	84	74
	79	Bhubneshwar	85	95
	80	Cuttack	93	90
	81	Kalinga Nagar	109	114
	82	Rourkela	99	106
	83	Talcher	113	81
Punjab	84	Amritsar*	189	118
	85	Dera Baba Nanak*	79	71
	86	Dera Bassi*	88	98
	87	Jalandhar*	178	130
	88	Khanna*	142	106
	89	Ludhiana*	168	150
	90	Mandi Gobindgarh*	148	122
	91	Naya Nangal*	87	70
	92	Patiala*	106	109
Rajasthan	93	Jaipur	172	126
	94	Alwar	152	112
	95	Jodhpur	189	161
	96	Kota	139	112
	97	Udaipur	127	122
Tamil Nadu	98	Chennai	66	57
	99	Madurai	72	53
	100	Trichy	88	45
	101	Tuticorin	123	67
Telangana	102	Hyderabad	110	88
	103	Nalgonda	59	70
	104	Patencheru	74	76
	105	Sangareddy	85	83
Uttar Pradesh	106	Agra*	202	146
	107	Allahabad*	169	119
	108	Ghaziabad*	285	216
	109	Kanpur*	227	170
	110	Lucknow*	253	148
	111	Meerut*	159	186
	112	Varanasi*	230	114
	113	Anpara*	175	154

State	Sl. No.	Cities	Average concentrations PM_{10} ($\mu g/m^3$)	
			2017-18	2021-22
			Annual Ambient Air Quality Standard for PM10: 60 $\mu g/m^3$	
	114	Bareily*	207	175
	115	Firozabad*	247	137
	116	Gajraula*	204	155
	117	Gorakpur*	150	122
	118	Jhansi*	109	128
	119	Khurja*	195	173
	120	Moradabad*	222	155
	121	Noida*	229	203
	122	Raebareli*	145	112
Uttarakhand	123	Dehradun	250	146
	124	Kashipur	99	119
	125	Rishikesh	129	117
West Bengal	126	Asansol*	147	112
	127	Barrackpore*	86	85
	128	Durgapur*	150	168
	129	Haldia*	92	94
	130	Howrah*	139	125
	131	Kolkata*	147	105

* Cities are funded under XVth Finance Commission Million Plus City Challenge Fund.

Annexure-IV: Measures taken by the Government to improve air quality

Government has taken several initiatives to improve air quality. The following actions were initiated by the Union Government:

A. Vehicular Emission

- **Leapfrogging from BS-IV to BS-VI** norms for fuel and vehicles since April, 2018 in NCT of Delhi and from 1st April, 2020 for rest of the country.
- Network of **metro rails for public transport** are enhanced and more cities are covered.
- Development of Expressway and Highways are also reducing the fuel consumption and pollution.
- **Eastern Peripheral Expressway & Western Peripheral Expressway** has been operationalized to divert non destined traffic from Delhi.
- **Ban on 10-year-old diesel vehicles** and 15-year-old vehicles in Delhi NCR.
- Environment protection charges (EPC) have been imposed on diesel vehicles with engine capacity of 2000cc and above in Delhi NCR.
- Introduction of cleaner/alternate fuels like CNG, LPG, ethanol blending in petrol.
- **Faster Adoption and Manufacturing of Electric Vehicles (FAME) -**2 schemes has been rolled out.
- Permit requirement for electric vehicles has been exempted.
- Promotion of public transport and improvements in roads and building of more bridges to ease congestion on roads.

B. Industrial Emissions

- Ban on use of pet coke and furnace oil in NCR, use of pet coke in processes in cement plants, lime kilns and calcium carbide manufacturing units.
- Stringent emission norms for Coal based Thermal Power Plants (TPPs).
- Shifting of industrial units to PNG/cleaner fuel in Delhi
- Installation of online continuous emission monitoring devices in highly polluting industries.
- Shifting of brick kilns in Delhi- NCR to zig-zag technology for reduction of pollution
- Notified emission standards for industrial boilers and five industrial sectors i.e. lime kiln, foundry, ceramic, glass and reheating furnaces, in the year 2018.

C. Air Pollution due to dust and burning of waste

- Notification of 8 waste management rules covering solid waste, plastic waste, e-waste, bio-medical waste, C&D waste, hazardous waste, battery waste and ash generated from thermal power plants.
- Setting up infrastructure such as waste processing plants.
- Extended Producer Responsibility (EPR) framework for plastic packaging, battery waste,tyre waste and e-waste have been implemented.
- Ban on burning of biomass/garbage.

D. Monitoring of Ambient Air Quality

- Expansion of air quality monitoring network of manual as well as continuous monitoring stations under programmes such as the National Air Monitoring Programme (NAMP).
- Initiation of pilot projects to assess alternate ambient monitoring technologies such as low-cost sensors and satellite-based monitoring.
- Public Grievances and Response System (PGRS) is developed under NCAP
- Emergency Response System (ERS) has been prepared in NCAP cities.
- Air quality monitoring cell has been constituted across the country in NCAP Cities.

- Implementation of Air Quality Early Warning System for Delhi, Kanpur and Lucknow. The system provides alerts for taking timely actions.
- Public Complaints regarding air pollution issues in Delhi NCR are taken through 'Sameer App', 'Emails' (Aircomplaints.cpcb@gov.in) and 'Social Media Networks' (Facebook and Twitter).
- At present ambient air quality is monitored through a network of 1208 manual and real time monitoring stations in 460 towns and cities across 28 states and 7 UTs in the country which is being further strengthened under NCAP.

E. Convergence of schemes of different Ministries/ departments in improving air quality in urban centers and across the country

Government has released several schemes and initiatives to improve air quality. States and Cities are leveraged to utilise resources through convergence of various schemes and programmes of Union and State Governments.

a) Ministry of Housing and Urban Affairs - Urban Swachh Bharat Mission 2.0

- Provision of Rs. 1,41,678 crores under SBM 2.0
- Period - 2021-2026
- Focused areas -
  - Source segregation of garbage,
  - Reduction in single-use plastic,
  - Effective management of C&D waste
  - Bio-remediation of all legacy dump sites
- Metro rail projects- augment public transport network in cities and thereby improvement in air quality

b) Ministry of Heavy Industries - Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME) Scheme (Phase II)

- Outlay - Rs. 10,000 Crore
- Period – Started in 2019
- Extended – for 2 years upto 31st March 2024
- Focused areas –
  - 7,090 e-Buses,
  - More than 15 lakh other categories of e-vehicles

c) Ministry of Petroleum and Natural Gas - Sustainable Alternative Towards Affordable Transportation (SATAT)

- Period – 2023-24
- Focused areas
  - Set up 5,000 Compressed Bio-Gas (CBG) production plants
  - CBG for use in automotive fuels

d) **Ministry of Petroleum and Natural Gas - Pradhan Mantri Ujjwala Yojana (PMUY)**

- Target of providing 8 crore LPG connections has been achieved
- To further increase the LPG coverage, additional 1 crore LPG connections will be released under PMUY.
- Focused areas
  - Reduced emissions from households due to cooking
- City Gas Distribution Network- adoption of cleaner fuels in the country

e) **Department of Agriculture & Farmer's Welfare - Promotion of Agricultural Mechanization for in-situ management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi**

- Rs. 1,749.17 crores for crop residue management in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi during FY 2018-19 to Fy 2020-21
- Rs 700 crores proposed for FY 2021-22
- Focused areas –
  - Machines for in-situ crop residue management are promoted
  - Subsidies are provided for establishment of Custom Hiring Centres.

f) **Ministry of Road Transport and Highways**

- Implementation of BSVI standards
- Ministry is also focusing on phasing out older vehicular through the vehicle scrapping policy

g) **Ministry of New and Renewable Energy - Schemes for renewable energy and MSW projects**

- Promotion of solar power
- Focused schemes on bio-gas/ bio-methanation plants for managing organic wastes, Waste to energy plants, etc.
- Provide financial incentives for renewable projects.

h) **Ministry of Environment Forest and Climate Change - National Mission for Green India**

- Increase forest/ tree cover on forest/ non-forest lands and improve quality of forest cover.
- Nagar Van Yojana

i) **Ministry of Power**

- Uninterrupted electric power supply
- Phasing out old coal based power plants
- Implementation of FGD in thermal power plants, etc.

F. Steps taken for improvement of air quality in Delhi-NCR

I. Constitution of Commission for Air Quality Improvement in National Capital Region and Adjoining Area (CAQM) through an Act passed by the Parliament of India on 13.08.2021, for the purpose of improving the Air Quality in National Capital Region and Adjoining Areas.

II. **Various actions taken by CAQM** is summarised as under:

Prevention and control of paddy stubble burning

- Framework for Prevention and control of paddy stubble burning prepared after extensive consultation with State Governments of Punjab, NCR States, GNCTD and Central Ministries, Knowledge institutions namely ICAR, IARI, ISRO etc.
- Major components of the Framework:
  - Plans to reduce generation of paddy straw (diversification to other crops and to other varieties).
  - *In-situ* Crop Residue Management
  - *Ex-situ* Crop Residue Management
  - Monitoring/Effective enforcement.
  - IEC activities.
- Statutory Directions to develop detailed state specific Action Plans based on the Framework. Plans finalized for Punjab, Haryana and Uttar Pradesh for 2022, based on the framework and also field learnings from the year 2021. The plans include a futuristic policy for ex-situ utilization of paddy straw.
- Statutory directions issued for mandatory co-firing of biomass with coal (@5-10%) in thermal power plants located within 300 kms. of Delhi.
- Statutory Directions issued for effective implementation of action plans for the prevention and control of Stubble Burning.

- Standard ISRO protocol developed for monitoring fire events. Statutory Directions issued for adoption of the protocol for recording of fire events using satellite data.
- Close monitoring by CAQM of the daily fire counts – regular follow up with the State Governments.
- Commission has evolved a comprehensive policy in July, 2022 towards short-term/ medium-term/ long-term actions to abate air pollution in the region across all contributing sectors.
- CPCB framed guidelines for promoting setting up of paddy straw based pelletization and Torrefaction plants which will help in addressing the supply chain issues. Scheme addresses the issue of open burning of paddy straw in agriculture fields in Northern Region. A corpus of Rs. 50 crores have been sanctioned from EPC funds. Assuming complete utilization of the corpus, over 1 million metric tonnes of paddy straw based pellets are expected to be generated every year.

Control of industrial emissions

- Statutory Directions issued for implementing the "Standard" fuel list of approved clean fuels in NCR and phasing out heavily polluting fossil fuels like coal, diesel oil, LDO etc.
- Statutory Directions for industries to shift to approved fuels, by 30.09.2022 (for areas where gas infrastructure is available) and by 31.12.2022, where gas infrastructure is still not available.

Directions/ Regulations for use of Power Generating Sets

- No restrictions on generator sets running on LPG/Natural gas, Butane/Propane/Biogas
- Uninterrupted use of DG sets permitted only for emergency services during GRAP.
- DISCOMS to ensure uninterrupted power supply in NCR to minimize use of DG Sets.
- Regulated use of DG Sets for industrial sector during GRAP for limited time subject to retro fitment of Emission Control Devices (ECD) and running on dual fuel mode (gas and diesel)

Control of vehicular pollution

- Implementation of Orders of Hon'ble NGT's and Hon'ble Supreme Court's not permitting overaged vehicles (15/10 yrs. for petrol / diesel vehicles respectively) to run in NCR.
- Advisory issued by Commission for developing suitable EV policies, focusing on mandatory procurement of e-vehicles for various sectors.
- Transition to CNG / cleaner vehicles also in outer NCR.
- Effective PUC regime – control on polluting vehicles

Dust management from roads and open areas and from construction and demolition activities

(i) Road dust management

- Statutory directions to all road owning/ maintaining agencies for setting up of 'Dust Control and Management Cells' (DCMCs).
- Key actions for DCMCs:
  - Optimum utilization of road sweeping machines
  - Scientific disposal of dust collected

- Sprinkling of water and dust suppressants on roads / right of ways
- Augmentation of sweeping and sprinkling machines
- Proper maintenance of roads and also keep road pothole free
- Laying of roads to fully support mechanised sweeping.
- Non-paved road sides to be paved or converted into green
- Greening of central verges / plantation of trees
- Cemented roads in industrial areas.
- Identification of hot spots and implement specific road dust control measures

o Sixty (60) 'Dust Control and Management Cells' set up.
  - NCT of Delhi : 11
  - Uttar Pradesh : 18
  - Haryana : 17
  - Rajasthan : 14

(ii) Dust management from C&D projects:

o Statutory directions issued mandatory registration of projects on plot size is equal to or more than 500 sq mtr. on the C&D web portal.
o Web portals functional in Delhi, Haryana and Uttar Pradesh. Under development in Rajasthan.
o Self-certification by the proponents on the portal.
o Cross Verification of the parameters as certified on the portal vis-à-vis the ground conditions.
o Compliances related to various rules and guidelines related to effective dust mitigation measures at C&D sites viz. Wind breakers, dust screens, water sprinkling, dust suppressants and soil stabilization measures etc.
o Deployment of adequate numbers of anti-smog guns, in proportion to the area of the construction sites.
  - At least 1 for a total construction area between 5000 - 10000 sqm.
  - At least 2 for a total construction area between 10001- 15000 sqm.
  - At least 3 for a total construction area between 15001- 20000 sqm.
  - At least 4 for a total construction Area 20,000 sqm.
o Compliance of guidelines for covering of construction materials with dust potential.
o Transportation of C&D materials in covered vehicles.

Other matters:

(i) Revised Graded Response Action Plan (GRAP)

o Revised GRAP based on Delhi's AQI as against PM2.5 / PM10 levels earlier.
o Preventive / restrictive / prohibitive actions under 4 different stages (I-IV) w.e.f. 01.10.2022.
o Daily forecasts by IMD/ IITM started.
o Sub-Committee for invoking GRAP meeting regularly for invoking the GRAP actions, based on the AQI forecast.
o Actions under Stage II, III and IV of the GRAP to be invoked at least three days in advance of the AQI reaching to the projected levels of that stage, based on the forecast.
  - 24 action points under Stage-I 'Poor' (AQI 201-300)
  - 12 action points under Stage- II 'Very Poor' (AQI 301-400)
  - 9 action points under Stage III 'Severe' (AQI 401-450)
  - 8 action points under Stage IV 'Severe+' (AQI>450)

(ii) Prevention of open burning of solid waste and bio-mass Desired Actions:

- Intensified inspections / monitoring during winters.
- Proper collection, segregation and disposal of solid waste.

- Proper clearance of leaves, twigs etc. after road cleaning activities.

(iii) Prevention of air pollution through fire crackers Desired Actions:

- Strict implementation of Hon'ble Supreme Court / NGT orders on use of fire crackers.
- Enforce ban on use of fire crackers wherever imposed.

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