



सत्यमेव जयते

राष्ट्रीय राजधानी क्षेत्र और
निकटवर्ती क्षेत्रों में
वायु गुणवत्ता प्रबंधन आयोग
Commission for Air Quality Management in
National Capital Region and
Adjoining Areas

No. F-20019/2/2021-GA/7450-90

Dated: 07.04.2022

Subject: 'Dialogue towards Clean Air' held on 7th and 8th March, 2022 at Gurugram - reg

Sir/ Madam,

Please find enclosed the proceedings of the "Dialogue towards Clean Air" held on 7th and 8th March, 2022 at Gurugram, for information and necessary action. Special attention is requested to the important takeaways and follow up actions that emerged during the Conference/ Dialogue, as summarised at the end of the report for each Technical Session.

Yours sincerely

Rajesh Kumar

(Rajesh Kumar)

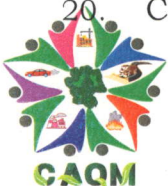
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6. Secretary, Ministry of New and Renewable Energy, New Delhi
7. Secretary, Ministry of Petroleum and Natural Gas, New Delhi
8. Secretary, Ministry of Heavy Industry, New Delhi
9. Chief Executive Officer, NITI Ayog, New Delhi
10. Chairman, Members and Associate Members of the Commission for Air Quality Management in NCR and Adjoining Areas
11. Chief Secretary, Government of NCT of Delhi, New Delhi
12. Chief Secretary, Government of Haryana, Chandigarh
13. Chief Secretary, Government of Punjab, Chandigarh
14. Chief Secretary, Government of Rajasthan, Jaipur
15. Chief Secretary, Govt. of Uttar Pradesh, Lucknow
16. Chairman, Haryana State Pollution Control Board, Panchkula
17. Chairman, Rajasthan State Pollution Control Board, Jaipur
18. Chairman, Delhi Pollution Control Committee, Delhi
19. Chairman, Uttar Pradesh Pollution Control Board, Lucknow
20. Chairman, Punjab Pollution Control Board, Patiala

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सत्यमेव जयते
राजस्थान सरकार
Government of Rajasthan



CONFERENCE REPORT

“Dialogue Towards Clean Air”

07 – 08 March, 2022

Venue: Apparel House, AEPC, Sector 44, Gurugram, Haryana

Organized by:

Ministry of Environment, Forest & Climate Change (MoEF&CC)

&

Commission for Air Quality Management in NCR & Adjoining Areas (CAQM)

“Dialogue Towards Clean Air”

The Commission for Air Quality Management in NCR and Adjoining Areas in collaboration with Ministry of Environment, Forest & Climate Change organized a two-day programme: “Dialogue Towards Clean Air” on March 07-08, 2022 at Apparel House, Gurugram, Haryana to deliberate upon the various factors impacting the air quality in NCR & Adjoining Areas.

Inaugural Session

Sh. Arvind Nautiyal, Member Secretary, CAQM, welcomed the distinguished guests of honour, Shri Bhupender Yadav ji, Hon’ble Minister Environment, Forest and Climate Change, Sh. K.P. Gurjar, Minister of State Power & Heavy Industries, Dr. M.M. Kutty, Chairperson, CAQM, Ms. Leena Nandan, Secretary, MoEFCC, Shri P Raghavendra Rao, Chairman, HSPCB, Shri Naresh Pal Gangwar Additional Secretary, MoEFCC, Shri Tanmay Kumar Additional Secretary, MoEFCC & Chairman, CPCB and other dignitaries and also expressed his sincere gratitude to them.

Dr. M.M. Kutty, Chairperson, CAQM, while introducing the “Dialogue Towards Clean Air” explained the multi-sectoral and multi-stakeholder dimensions of the complex issue of air pollution in NCR and adjoining areas. He briefly touched upon the mandate of the Commission, major sectors contributing to pollution, steps taken by the Commission and identified measures for prevention, control and abatement of air pollution. He emphasized the need to implement various measures to control pollution by the agencies concerned on a regular basis and also elaborated the progress achieved so far in controlling air pollution in NCR.

Shri. P. Raghavendra Rao, Chairman, HSPCB addressed the gathering reiterating the need for effective field level implementation of policies and programme to control air pollution.

Ms. Leena Nandan, Secretary, MoEFCC in her address highlighted the importance of effective coordination and policy level facilitation to tackle air pollution in NCR.

Hon'ble Chief Minister, Haryana in his video message stated that this two-day "Dialogue Towards Clean Air" organized by CAQM is a practical approach for improvement in air quality in NCR and adjoining areas and wished for fruitful discussions on topics related to NCAP, controlling industrial pollution, pollution from C&D waste, role of municipal bodies in air pollution control etc. He added that more than 60% area of Haryana, spread over 14 districts out of total 22 districts in the State falls in NCR and Government of Haryana has taken a number of initiatives to control air pollution while trying to maintain a balance between development and environment in the region. He stated that Haryana is undertaking important steps towards e-mobility. For the *in-situ* and *ex-situ* management of crop residue, he added that various measures have been taken and hoped that Haryana would be able to control paddy stubble burning to a large extent. Hon'ble Chief Minister, Haryana further remarked that 29 CAAQMS have been installed in Haryana of which 21 are in NCR districts. In pollution hotspots greening through plantation have been planned. He further added that the State Government is continually sensitizing public on the issue of air pollution and seeks their active cooperation towards mitigation.

Shri Bhupender Yadav ji, Hon'ble Union Minister, EFCC in his inaugural address highlighted the need for adopting an air shed approach. He stated that the concept has already been incorporated in CAQM Act. He further stated that the Hon'ble Prime Minister has also emphasized that to address the issues of air pollution, a scientific and technological approach should be adopted besides implementation of various provisions of the Act. He also stated that this Act could serve as an example for mitigating the issue of air pollution in the entire country and guided by the vision of Hon'ble Prime Minister, the NCAP is now being upscaled and replicated in a mission mode across all major cities and urban agglomerates which face air pollution issues. A large number of air quality monitoring stations have been and are being installed all over the country. Under the NCAP, various institutions including NGOs, administrative offices and other stakeholders are involved and regional seminars are being organized to disseminate and share knowledge to abate air pollution. The first such seminar was organized in Mumbai for the entire western region of the country. The "Dialogue Towards Clean Air" is being organised now for the entire NCR and similar such regional seminars / workshops would be organised under the ambit of NCAP by MoEFCC. He stated that Rs.4,400 crore have been earmarked by the XV Finance Commission for mitigating air pollution related issues across major cities of the country through the ULBs concerned. He also highlighted the Notification regarding regulations / ban on single use plastic w.e.f. 1st July, 2022 adding that Hon'ble Prime Minister had first envisioned this initiative in 2018 which was duly incorporated in a resolution passed/adopted by the UNEA.

Hon'ble Minister also stressed upon the need for city specific plans for mitigation of pollution and therefore MPs, Mayors, Commissioners, NGOs etc. have also been invited to this Dialogue. He added that various laws, decisions and directions of the Commission should be followed by all concerned for effective air pollution control.

Hon'ble Minister shared his concern on Solid Waste Management practices and strategies in NCR and called upon the State Governments and municipal bodies to take special initiatives to effectively handle this issue. He lauded the efforts made by the State Government of Haryana towards ecological restoration initiatives in the Aravallis and added that a lot is required to be done to preserve the eco-sensitive areas in NCR including the Aravalli range, the Yamuna River bed, Jasola etc. He further stated that dust management is another major area of concern for which greening and plantation measures need to be undertaken in a big way, also involving schools and school children. He stressed upon effective implementation of the "Nagar Van Scheme" to develop urban forests across the country with a renewed focus on people's participation and collaboration between Forest Department, Municipal Bodies, NGOs, Corporates and local citizens. The need for sound dust control measures at various construction sites was also highlighted by the Hon'ble Minister.

Hon'ble Minister added that biomass / agriculture residue burning is also a major source of air pollution in the NCR, particularly during the months from September - November. However, stubble burning by the farmers has been decriminalized in the Act and the government is working towards facilitating

farmers to effectively manage the paddy straw through various *in-situ* and *ex-situ* measures. Thermal Power Plants across the country and those particularly located in close vicinity of NCR have been directed to co-fire biomass including *parali* in the power plants and tenders for procurement of such biomass have been / are being floated. There are other possibilities for *ex-situ* utilisation of paddy straw and hence *parali* could be a resource for farmers and for this purpose we have to collectively create an ecosystem for maximum utilization of *parali*.

Talking about brick kilns in rural areas, he stated that MoEFCC has now notified zigzag technology to make the brick kiln operations environment friendly. He further stated that in the interest of environment protection and better air quality, the industries must switch over to clean fuels like PNG, CNG etc. The Hon'ble Minister emphasised that the intent of environmental regulations is to strike a balance between the imperatives for development and environment protection and are not pointed towards closure of economic activities. Adding further, he stated that climate change, biodiversity conservation and desertification of land are the three most talked about themes in various conventions across the world.

Day 1: 7th March, 2022

Technical Session I- National Mission for Clean Air (NMCA)

As envisioned by the Hon'ble Prime Minister in his Independence Day Speech 2020, the National Clean Air Programme (NCAP) launched by the Ministry of Environment, Forest and Climate Change in 2019 is now being upscaled and implemented across major cities / urban agglomerates in the country on a mission

mode. All the identified 122 non-attainment cities, in terms of national ambient air quality standards for PM_{2.5}/ PM₁₀ emissions as also other cities with million plus population, have been included in the mission, under a vision of "Clean Air for All".

The Central Government, through dedicated funding under the NCAP and by way of special grants sanctioned by the Fifteenth Finance Commission for abating air pollution in million plus population cities, has been supporting identified cities towards air pollution prevention, control and abatement measures.

The theme of the first technical session was focussed on the upscaling of the NCAP in a mission mode and presentation was made by the Addl. Secretary, MoEFCC and Chairman, CPCB on the policy framework and implementation plan for the targeted cities across the country. The Session also witnessed presentations of the city specific action plans under the NCAP for Delhi, Faridabad, Ghaziabad and Noida.

Technical Session I was chaired by Sh. P. Raghavendra Rao, Chairman, HSPCB. The session had 4 presentations. Presentation was made by the Additional Secretary, MoEF&CC and Chairman, CPCB on the policy framework and implementation plan for all the targeted cities across the country. The programme is aimed towards 20 % to 30 % reduction of PM₁₀ concentration by 2024 and improvement of air quality of 132 cities identified under the NCAP & the XVFC grants. The key features are as under:

- Performance based funding under XVFC and NCAP from 2021-22 onwards as per signed MoUs. Ranking and incentivizing performing cities. PRANA portal for monitoring and implementation of NCAP.
- Convergence of activities under various other schemes & programmes of Central and State governments & 7 line Ministries (MoHUA, MoRTH, MoPNG, MoP, MHI, MNRE & MoAF&W).
- Promotion of R & D for prevention, control and abatement of air pollution, creation of National Knowledge Network with Institutions of Repute for technical and scientific support to various activities in action plans, awareness and programmes for enhancing public participation and collaboration with international agencies and NGOs.
- Framework for release of funds under NCAP: - Up to 31st Dec 21 Rs 407.7 crore has been released under NCAP and Rs 4400 crore released under XVFC grants in FY 2020-21. Also, Rs 290 crore allocated for FY 2021-22 under NCAP and Rs 2217 crore allocated under XVFC grants for FY 2021-22.

The city specific action plans under NCAP for Delhi, Faridabad, Ghaziabad and Noida were presented by Sh. Sanjeev Khirwar, Principal Secretary (Env.), Govt. of NCT of Delhi; Sh. Yashpal Yadav, Commissioner, Municipal Corporation Faridabad, Govt. of Haryana; Sh. Shiv Pujan Yadav, Additional Municipal Commissioner, Ghaziabad, Govt. of Uttar Pradesh and Sh. Avinash Tripathi, OSD, Noida Authority, Govt. of Uttar Pradesh respectively.

Important follow up actions emerged from the Session

| S. No. | Envisaged Action | Responsible Agency(ies) |
|--------|---|----------------------------|
| 1. | Critical review of the city action plans under NCAP aligning with the present status of air quality, identified interventions and apportionment of financial resources for different sectors. | ULBs, SPCBs/ DPCC, CPCB |
| 2. | Active involvement and lead role by ULBs in monitoring of measures to abate air pollution. | ULBs |
| 3. | Performance audits at frequent intervals. | SPCBs/ DPCC, CPCB |
| 4. | Sharing of best practices amongst cities. | SPCBs/ DPCC, ULBs |

Technical Session II

Role of Municipalities and service agencies in abatement of Air pollution

This Technical Session, chaired by Sh. Sanjeev Khirwar, Principal Secretary (Env.), Govt. of NCT of Delhi, focussed on the “Role of Municipality and service agencies in abatement of air pollution”. The session had 6 presentations.

Sh. J.B. Ravinder, Joint Advisor, Ministry of Housing & Urban Affairs in his presentation elaborated the policy enablers for urban solid waste management under the “Swachh Bharat Mission”.

The presentation also touched upon the ways to address and manage huge quantities of legacy waste dumped at sanitary landfill sites. The highlights of the presentation are as under:

- Ways to address and manage huge quantities of legacy waste dumped at Sanitary Landfill (SLF) Sites.

- Solid Waste Management (SWM)- Segregation of dry and wet waste and sustainable sanitation has been taken as major components of Swachh Bharat Mission (SBM 2.0). Garbage free city has been taken as a new challenge area including reclamation of legacy waste dump sites in a mission mode.

Interventions regarding municipal solid waste management and efforts for control on open waste burning were detailed out in the presentations by Shri Vikas Anand, Commissioner, EDMC, Sh. Mukesh Kumar Ahuja, Commissioner, GMC and by Shri Salil Yadav, DGM, Greater Noida Authority.

EDMC highlighted that 140 lakh MT of legacy waste has already been processed and the balance is likely to be processed by December' 2024.

GMC informed that a 25 MW Waste to Energy (WTE) plant for processing entire waste of Gurugram and Faridabad is under construction and is likely to be completed by October, 2023. Bandhwari SLF site reclamation is being done by bio-remediation and bio-mining, fractions are being used as RDF in WTE plants, cement plants and as inert material.

GNIDA informed that a 900 MT plastic recycling facility is being established and digital monitoring of projects and mechanical sweeping of road is being undertaken.

Sh. Ashish Tiwari, Secretary, Environment, Govt. of Uttar Pradesh made a detailed presentation on "Management of Dust from Construction and Demolition activities" and highlighted the

challenges and presented the concept of an online web portal for remote monitoring of dust control measures from C&D sites. Establishment of Smart cities Integrated Command and Control Centre (ICCC) was highlighted as a way forward.

Sh. Dinesh Yadav, Director, SDMC also made a presentation on “Management of Dust from Road sides and Open Areas” including the result of a pilot study on effectiveness of dust suppressants on roads. The presentation also touched upon a pilot project undertaken by SDMC in collaboration with A-PAG regarding dispersed sources causing pollution. Pursuant to successful implementation of the project, the same has been extended to New Delhi Municipal Council, North and East DMC.

Important follow up actions emerged from the Session

| S. No. | Envisaged Action | Responsible Agency(ies) |
|---------------|--|--|
| 1. | Concrete and time bound plan for liquidating legacy solid waste at sanitary landfill sites through waste processing plants. | Urban Affairs Department of the State Govts. /GNCTD, Municipal Commissioners |
| 2. | Expediting the timelines for completion of infrastructure works and capacity enhancement related to waste processing facilities in cities. | Urban Affairs Department of the State Govts. /GNCTD, Municipal Commissioners |
| 3. | Effective management and control on waste segregation at source. | ULBs |
| 4. | Expansion of waste recycling capabilities and timely completion of ongoing infrastructure works. | Urban Affairs Department of the State Govts. /GNCTD, Municipal Commissioners |
| 5. | Stringent implementation of measures | SPCB/ DPCC |

| | |
|--|--|
| <p>for prevention and control of dust from construction and demolition activities as also from roads and open areas including by augmenting mechanized means of cleaning, sweeping and dust collection, as well as by extensive use of anti-smog guns/ water sprinklers and dust suppressant chemicals / techniques.</p> | |
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Session-III

Open session/ Interaction with Non-Governmental Organizations

A special open Session towards a participative and collaborative approach in tackling the issue of air pollution in the NCR was chaired by Hon'ble Minister MoEF&CC Sh. Bhupendra Yadav, wherein he interacted with number of NGOs, industry associations etc. on various aspects relating to pollution.

The Chairman, CAQM briefed about deliberations held during the previous two sessions and requested NGOs to give their suggestions on air quality management strategies based on their experience.

Thereafter, around 20-22 stakeholders including research organizations, NGOs, associations and individuals suggested various air quality management strategies covering different sources.

Deliberations held during the Session:

Clean Air Fund: Suggested a common platform to showcase the best practices adopted by ULBS under the National Mission for Clean Air.

Hon'ble MEF&CC stated that under the XVFC grant, Rs 4400 crore have been given to 42, million plus cities for air quality improvement. PRANA portal has been launched for monitoring of the implementation of the NCAP. Further, there is provision of funding for cities through various programmes/schemes of line Ministries. Hon'ble Minister highlighted that city governance plays a key role for air quality management and NCAP emphasises people participation.

Centre for Science and Environment highlighted the importance of use of cleaner fuels, waste management, execution of prepared plans in a time bound manner, requirement of assessment for infrastructure gap and addressing the same. She also suggested a regional approach towards the problem and capacity building of ULBs.

Hon'ble MEF&CC stated that capacity building is being encouraged through regional workshops organized under NCAP. Mayors are also being consulted. He appreciated and welcomed suggestions for science-based policies.

Public Health Foundation of India: Suggested for integration of Ministry of Health under NCAP and also highlighted waste segregation at source and encouragement of bio methanation in the polices of Gol.

Hon'ble MEF&CC stated that bio-methanation is already under active consideration of the GoI and projects such as "Gobar-dhan" have already started in various parts of the country like Varanasi, Indore etc.

Shakti Energy Sustainable Foundation: Raised issues of shortage of staff in SPCBs and ULBs and requested to explore method for utilizing private financing for the purpose along with project monitoring unit. Air shed approach for air quality management was also suggested.

Hon'ble MEF&CC stated that through CAQM Act, air shed approach has already been initiated. Further, he emphasized that environmental audit including green fund, green bond, carbon credit is the future tool for abatement of pollution.

Air Pollution Action Group highlighted that a project of abatement of pollution from dispersed sources has been successfully piloted in Delhi and could be replicated to other ULBs. A-PAG reiterated the need for timely installation of FGD in thermal Power plants.

Additional Secretary, MoEF&CC informed that timelines for installation of FGD in thermal power plants have been stipulated in Guidelines issued in December 2020 and CPCB is regularly monitoring the progress.

TERI highlighted gaps in city action plans vis- a- vis execution on ground and suggested suitable revisions in the plans. They also suggested use of biomass/cleaner fuel in industries.

Climate Trends suggested that socio economic risk factor to health due to air pollution may be assessed.

Hon'ble MEF&CC stated that public health is a priority of Government of India. Accordingly, budget for public health has been enhanced.

Centre for Policy Research suggested for revamping of environmental standards, adopting an airshed approach and increased role of NGOs in assisting ULBs for framing action plans.

CEEW suggested to introduce plans / policies for abatement of pollution through ideas, scientific and technological solutions including regulating construction and demolition activities / industrial activities, instead of a complete ban during periods of adverse air quality in the NCR.

World Resources Institute suggested that start-ups be involved for innovative solutions towards abatement of Air Pollution. Best practices adopted by cities and industries could be showcased to others to encourage Capacity building and technical assistance to ULBs.

CSTEP emphasized the urgent need for capacity building of ULBs enabling them to prepare good action plans and convergence of funds/activities with line Departments/Ministries.

Amongst other suggestions, the **Indian Pollution Control Association** raised the issue of household air pollution; **ICLEI South Asia** raised the issue of acute shortage of manpower in SPCB and ULBs; **Centre for Ecology Development and Research** raised the issue of land use and Forest cover along with a review of Draft Regional plan 2041 for NCR; **Shudh Vayu Mission** suggested a portable air purifier system that could be installed on any moving system; **Volunteer Group-There is no**

earth B suggested that open waste burning in the Ridge area should be monitored and sanitation facility should be provided to workers in that area. Further youth participation should be encouraged for clean air through training and awareness programmes.

Representative from **Brick Kiln Associations** highlighted the efficiency of zig-zag technology in combination with other pollution abatement measures such as water scrubbers etc. They also highlighted the need to permit use of agriculture residue in the Brick Kilns.

Representatives from **Stone crusher industries** highlighted the issue of co-locating of brick kilns with other industries and requested for a review of the decision of closure of such industries for long durations, much more than other industries, during the winter months since last 5 years.

In his concluding remarks, Hon'ble MEF&CC appreciated the efforts by the NGOs, their suggestions in highlighting various issues with regard to air pollution. He stated that a way forward would be a good regulatory system with balanced approach for development and protecting the environment in a sustainable manner, in line with fundamental rights and duties, involving participation of all. He assured that Ministry would consider suggestions given by NGOs towards science-based policies for pollution abatement and environment conservation.

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Day 2: 8th March, 2022

Technical Session IV

Abating Vehicular and Industrial Pollution

The Technical Session - IV was chaired by Dr. N.P. Shukla, Member Technical, CAQM and focused on control of emissions from vehicular and industrial pollution. To promote cleaner fuels like PNG in the industries and transport sector, the Ministry of Petroleum & Natural Gas has provided a road map for PNG infrastructure and supply in the entire NCR. E-mobility as a potential solution for addressing vehicular pollution and road map was presented by NITI Aayog during this session. Ways to reduce emissions from the vehicles in the transport sector were presented by the Automotive Research Association of India (ARAI). Control emission from large scale use of diesel gensets including retro fitment of Emission Control Devices was also presented by CPCB and deliberated upon during the Session.

In this session, first presentation was made by NITI Aayog on “e-mobility-potential solution for addressing vehicular pollution”. NITI Aayog’s presentation highlighted that transport sector alone contributes 27% of GHG through Internal Combustion Engines (ICEs). During pandemic 50-52% reduction in NO_x level have been recorded in Delhi which shows the contribution emanating from transport sector.

Considering the fact that e-mobility can be very helpful in reducing PM, NO_x and other GHGs, Central and State Govts. have initiated various Production Linked Incentives (PLI) schemes such as Advance Chemistry Cell at the level of supply, Auto & Semi-conductor scheme at manufacturing stage and Faster

Adoption and Manufacturing of Hybrid & electric Vehicles (FAME) scheme to give a boost to development & adoption of electric vehicles. Department of Heavy Industries has also initiated a scheme to give a boost to development and adoption of electric vehicles.

Detailed presentation was made by Automotive Research Association of India (ARAI), on “Ways to reduce emissions from transport sector”. It was presented that transport sector contributes 12-40% of the air pollution. Adoption of alternative fuels which includes gasoline, methanol, and bio-diesel were suggested. ARAI informed that studies are underway for use of M15 fuel (Methanol) and E20 would be adopted by 2025. It was also highlighted that hydrogen would perhaps be the future fuel in terms of fuel efficiency and pollution impact.

Presentation was also made by Central Pollution Control Board (CPCB) on “Control of emissions from DG sets”. The guidelines for mandatory retro fitment of emission control devices in existing diesel gensets up to 800 KVA capacity which are more than 5 years old, to control PM emissions by about 70%, including the certification by authorised agencies and scrapping of 15 years old D.G. sets etc. were presented.

During the session, statutory Direction No. 54 – 57 dated 08.02.2022 issued by the Commission in this regard was explained in detail including adoption and retro fitment of a dual fuel system (Natural Gas and Diesel) in industrial areas where PNG infrastructure and supply is available, to enable such industrial units to run their DG Sets for a maximum of 2 hrs in a day in the event of interruptions in regular power supply.

to be issued by CPCB without any delay. Till such time, these generator sets shall be continued to be regulated by SPCBs under provisions of Air Act, 1981.

Important follow up actions that emerged from the Session

| S. No. | Envisaged Action (Vehicular Sector) | Responsible Agency(ies) |
|---------------|---|---|
| 1. | Expeditious expansion of natural gas network to shift vehicles to cleaner fuels. | MoPNG, State Govts. CGD agencies |
| 2. | Consideration for PNG / CNG to be brought under the ambit of GST and other financial incentives like subsidy etc. | MoPNG and Ministry of Finance |
| 3. | Time bound and targeted policies for proliferation of e-mobility focusing on 2-wheelers, government procurements of vehicles and commercial / delivery service vehicles. | Transport Deptt. of State Govts /GNCTD. |
| 4. | Expansion of battery charging infrastructure including battery swapping. | State Govts / GNCTD. |
| 5. | Promotion of hybrid electric vehicles and zero emission vehicles. | State Govts /GNCTD. |
| 6. | Study the possibilities for retrofitment of fossil fuel based 2-wheelers into electric mode. | ARAI, DHI |
| | Envisaged Action (Industrial Sector) | |
| 7. | Targeted completion of infrastructure works and supply of PNG in all industrial areas across Delhi NCR by 2022-23. | MoPNG, State Govts., CGD agencies |
| 8. | Developing an effective eco-system for processing biomass and agriculture residues into pellets / briquettes as fuel in various industrial applications in the NCR (beyond GNCTD jurisdiction), in a complementary mode along with PNG. | NCR State Govts., Ministry of Agriculture |
| 9. | Expeditious retro-fitment of DG sets running in the NCR with Emission Control Devices as per CPCB guidelines. | SPCBs/ DPCC, CPCB |

| | | |
|-----|--|-------------------------------------|
| 10. | Retro-fitment of dual fuel mode (gas/diesel) for DG sets in industrial areas where gas is readily available. | SPCBs/ DPCC |
| 11. | Phasing out usage of heavily polluting fossil fuels like coal, diesel oil, LDO, LSHS, pyrolysis oil, Naptha etc. in industries across NCR. | NCR State Govts., SPCBs/ DPCC, CPCB |
| 12. | Increased vigilance and monitoring on compliance of standards for emissions from various categories of industries. | SPCBs/ DPCC, CPCB |

Technical Session V

Sustainable Agricultural Stubble Management

The Technical Session - V was chaired by Shri Naresh Pal Gangwar, Additional Secretary, MoEFCC and was centred around sustainable agricultural stubble management and prevention and control crop residue burning. Various strategies, methodologies and schemes for both *in-situ* and *ex-situ* management of crop residue were presented, with focus on paddy crop residue management.

Presentation was made by Shri Arvind Nautiyal, Member Secretary, CAQM on “Learnings and way forward to ensure Sustainable Agricultural Stubble Management” on various aspects of prevention and control of stubble burning by *in-situ* & *ex-situ* managements including:

- (i) A broad framework developed by CAQM for prevention and control of stubble burning, monitoring and effective enforcement of regulations including regular and wide-reaching IEC activities.

- (ii) Statutory directions by the Commission for finalisation and implementation of detailed state specific monitorable action plans.
- (iii) Framing of a standard protocol by ISRO for recording and monitoring of fire counts owing to stubble burning.
- (iv) Directions for co-firing up to 5-10% of biomass pellets/torrefied biomass pellets in 11 TPPs within 300 kms of Delhi.
- (v) Providing CRM machines at doorstep of farmers and leveraging technologies including mobile applications to facilitate bookings through CHCs, Village Panchayats and FPOs etc.
- (vi) Optimal utilization of “Super SMS” along with combine harvester.
- (vii) Increased use of PUSA bio-decomposer for in-situ management of agriculture stubble.
- (viii) Framing of suitable policies towards availability of paddy straw to various sectors (as fuel in industrial boilers, WTE plants, brick kilns, TPPs) and other application like composting, bio-fuel / biogas production, bio-mass power generation, paper and packaging industry etc. for *ex-situ* crop residue management.
- (ix) Promotion of basmati variety of paddy, short duration & early maturing varieties of non-basmati paddy and crop diversification to other cash crops.

Shri Vidyut Mohan, Co-founder & CEO, Takachar made a presentation on a technology capable of transforming waste biomass into various marketable products. The presentation demonstrated an equipment to provide low cost, small-scale portable system to process crop residues (rice husk, wheat straw, coconut shells etc) at source for further economic value.

Shri Sudip Nag, Executive Director (Biomass), NTPC gave presentation on “*Ex-Situ* Utilization of Agricultural Stubble in Coal based Thermal Power Plants” highlighting NTPC’s initiative in setting up of national mission on use of biomass for co-firing in thermal power plants to address issue of air pollution due to stubble burning and to reduce carbon footprint.

Shri Pankaj Dwivedi, Head of Agronomy & Business Development, M/s Nurture Farms made a presentation on “*In-situ* Management of Agricultural Stubble through Bio-decomposers- Advantages and Limitations”. The presentation focused on *in-situ* management of crop residue by decomposing the stubble using IARI licensed PUSA decomposer water soluble powder through boom sprayers and tracking & monitoring of farms via satellite imagery & IoT. The firm highlighted that its attempts have been successful and it will be enhancing coverage of bio-decomposer application during the current year. He stated that State Governments may take initiative to provide incentives to farmers to offset operational cost and subsidies for sprayers under PLI scheme. He also highlighted that with adequate support of State Government, bio-decomposer can be applied on a much larger scale.

Shri Ashish Singh, Manager, Verbio India Pvt. Ltd. also made a presentation on “Robust supply chain, a pre-requisite for a successful *ex-situ* Management Model”. The presentation highlighted that M/s Verbio has set up India’s largest compressed biogas manufacturing plant in Punjab with 33 tonnes Bio CNG and more than 500 tonnes bio manure production capacity per day. M/s Verbio have also developed an integrated biomass management supply chain from farms to feed the biogas plants.

Verbio India Pvt. Ltd. have a patented technology to convert the straw into biogas and Bio-CNG. Storage and maintaining the quality standards of Bio-CNG are the main challenges highlighted by Verbio.

The presentations highlighted the need for robust public-private-partnerships for realising the revenue earning potential by the farmers / villagers. A need for adequate storage infrastructure to facilitate perennial demand of crop residue and localization or ease of import facilitation of straw collection / processing machinery such as bailers / rakers was also highlighted during the session.

Important follow up actions that emerged from the Session

| S. No. | Envisaged Action | Responsible Agency(ies) |
|---------------|--|--------------------------------|
| 1. | Promotion of biomass for various ex-situ applications through suitable policies towards availability of paddy straw to various sectors (viz. as fuel in industrial boilers, WTE plants, brick kilns, TPPs) and other applications like composting, bio-fuel/biogas production, bio-mass power, paper / packaging industry etc. | State Govts., MoA&FW |

| | | |
|----|--|--|
| 2. | Establishment of robust supply chain to ensure uninterrupted availability of biomass fuels perennially for industries. | State Govts. |
| 3. | Consideration by MoA&FW to provide subsidies for balers and rakers even for industrialists / entrepreneurs / aggregators involved in processing of agricultural straw (pelletisation / briquetting etc.) under CRM or similar schemes of the Ministry. | MoA&FW |
| 4. | Enhanced utilization of biomass for co-firing with coal in thermal power plants as per statutory directions in this context. | Ministry of Power, State Governments, NTPC and thermal power plants within 300 kms of Delhi. |
| 5. | Expanding application coverage of PUSA bio-decomposer through CSR / CER initiatives of private/ public sector and financial incentives by the State Governments. | State Govts., MoA&FW, IARI |
| 6. | Bringing the 'boom sprayers' for application of bio-decomposer solution under the ambit of CRM or similar scheme of the MoA&FW. | MoA&FW, MoEFCC, State Governments of Punjab, Haryana & U.P. |

Technical Session VI

Green and Clean Air

In the last Technical Session - VI, "Greening and Plantation Measures for Abatement of Air Pollution" were deliberated upon, including the urban forestry initiatives by MoEFCC like the "Nagar Van Scheme". The State Government of Haryana also presented their account of greening initiatives in the State to curb air pollution. A perspective on long-term measures and solutions to address the issue of Air Pollution was also discussed in this session.

This session was chaired by Shri P. Raghavendra Rao, Chairman, Haryana Pollution Control Board and the theme of session was "Green and Clean Air". Various Greening/Plantation Programmes of MoEF&CC under National Mission for Green India, Nagar Van Yojna, CAMPA, Eco Task Force were presented. Plantation components of Ministries/Departments other than MoEF&CC are Agro forestry/National Bamboo Mission, Horticulture crop plantation (MoA&FW), Watershed Development Component (PMKSY, DoLR, MoRD), MNREGA, Green Highways, Namami Gange, Mulberry Plantation etc. Plantation activities/programmes are also undertaken by the States and other agencies.

- **National Afforestation Programme (NAP)** (2000-2021)
Ecological restoration, environmental conservation and Eco-development activities are undertaken with people's participation. Around 22 lakh ha land has been covered under plantation in 20 years with a cost of Rs 3940 crore.
- **Compensatory Afforestation Management and Planning Authority (CAMPA):** A Fund has been established for undertaking artificial regeneration (plantations), assisted natural regeneration, protection of forests, forest related infrastructure development, Green India Programme, Wildlife protection etc.
- **Eco Task Force** was initiated in 1982. It addresses the issues of ecological restoration of difficult terrains and also envisages soil conservation and water resources management techniques.

- **Nagar Van Yojna:** It aims to create forest within city/town. It increases climate resilience and biodiversity involving a collaborative mode of implementation. This scheme enables developing Nagar Van in their area using the Govt's fund. Tremendous response has been observed in the scheme. 235 Nagar Van proposals have been received, of which 75 have been approved and funds in respect of 64 proposals have been released so far.
- **School Nursery Yojna:** School students are also being involved for plantation activities. Rs. 1 lakh is provided to each school and 1000 seedlings are provided every year to plant and nurture them.

Dr. Vivek Saxena, APCCF & CEO, Haryana State Forest CAMPA Authority made a presentation on Abatement of Air Pollution & Greening initiatives undertaken in the State of Haryana, viz:

- **Aravalli green activities:** afforestation/reforestation activities and ground water recharging have been taken up in the Aravalli region of Haryana. Aravalli protection has been focused along with the developmental needs. Various water bodies have been lost in the past such as Badkhal lake due to the developmental activities. Aravalli Biodiversity Park (started in 2011) have been set up in Gurugram and 1,15,000 plants of 200 species have been added.
- **Agro-forestry** has been promoted to make Haryana a wood surplus state. Yamuna Nagar is regarded as India's plywood capital.

- **Miyawaki Forests:** It is a Japanese technique for densely populated urban settings where land is scarce. Here, 30 times more trees are planted and it absorbs 30 times more CO₂. This technique has been adopted in various districts of Haryana. Around 1200 sq m areas near NH 65 in Jind District has been covered under Miyawaki Forest. It has the potential to reduce dust and noise pollution.
- **Nagar Van Scheme** has been proposed in Karnal, Panchkula, Nuh and Jhajjar.
- **Prana Vayu Devta Pension Scheme** has been announced by the Hon'ble CM, Haryana in which Rs 2500 per year is proposed to be provided for the trees older than 75 yrs.
- **Paudhagiri** is an initiative by Govt. of Haryana in which school students are motivated to plant the saplings anywhere and learn to nurture them.
- **Mera Pani Meri Virasat** is another initiative taken in which Rs 7000 per acre fund will be provided for crop diversification from rice.
- A concept of **3-30-300 Rule** for urban forestry is being tried to be adopted under which it is envisaged that at least 3 trees must be visible from window level, a 30% tree cover to be achieved and a park within 300m.

Sh. P. Raghavendra Rao, Chairman HSPCB & Chairman, Expert Group of CAQM made a presentation on "A perspective on long term solutions". The need for long term strategies to address the issue of poor air quality in NCR, particularly during the winter months and various activities undertaken by CAQM were highlighted. It was stated that pursuant to the orders of Hon'ble

Supreme Court an Expert Group has been constituted under his Chairmanship and the Group is deliberating on the short and long term solutions and strategies to combat the air pollution based on suggestions received from general public as well as extensive deliberations held so far on the matter including with experts.

Important follow up actions that emerged from the Session

| S. No. | Envisaged Action | Responsible Agency(ies) |
|---------------|---|---|
| 1. | Expanding the net of “Nagar Van” and “Nagar Vatika”, wherever feasible, in urban agglomerations and cities in NCR, including adoption of MIYAWAKI technique for dense plantation in limited urban spaces. | MoEFCC, Forest Deptt. and Urban Affairs Deptt. of NCR State / NCTD. |
| 2. | Mass plantation drives focusing on proper nurturing and better survival rate, prioritising native species. | NCR State Govts./GNCTD |
| 3. | Target oriented action plans for greening / paving of central verges and sidewalks along the entire road network in NCR. | Road owning agencies, urban affairs Deptt. in NCR State / NCTD. |

Valedictory Session

The valedictory session of the “Dialogue Towards Clean Air” on 8th March, 2022 was graced by Shri Ashwini Kumar Choubey, Hon’ble Minister of State EFCC.

Shri Arvind Nautiyal, Member Secretary, CAQM, presented a brief on the proceedings of the Dialogue held during the two days of the dialogue. During the briefing, he informed that the conference was attended by experts from various sectors, regulatory agencies in NCR, Industrial associations and NGOs.

The conference had five technical sessions along with one open interactive session with NGOs, which was chaired by Hon'ble Minister EFCC. He appraised the Hon'ble Minister about the salient features of various presentations made on the multi-sectoral issues of air pollution, ways and means to address the issues and the preparedness of GNCTD and the NCR states to fight the menace across the NCR air shed.

Hon'ble MoS, EFCC stated that this two-day Dialogue is akin to a "Samudra Manthan" which will result in new ideas for environment protection. He stated that the Dialogue would greatly benefit stakeholders and the society as a whole and added that the ideas, technologies and suggestions during the conference, including an interactive dialogue with NGOs, have brought many informative and innovative ideas on the table.

It was highlighted by the Hon'ble MoS that modernization could be adopted along with the traditional ideas and lifestyle and both can go side by side. Water pollution, air pollution, vehicular pollution, dust pollution, C&D based pollution all lead to environmental degradation. The Hon'ble MoS stated that we should not just demand resources from nature as a matter of right rather, we have a moral duty to safeguard and conserve natural resources.

CAQM has been constituted with the specific vision for clean air in the NCR and all stakeholders must join hands for participative and collaborative efforts with CAQM for necessary steps to combat air pollution in the region.

He stated that CAQM has conducted many meetings and the efforts of Commission are showing results. He added that the issue of stubble burning needs a scientific and technical approach by involving institutes of repute like PUSA and farmer organizations. The power plants have planned to use stubble and biomass for co-firing. He further called upon the farmers not to adopt short cut techniques of farming as these are harmful and lead to loss of productivity in the long term.

The Hon'ble Minister observed that the presence of dignitaries, an impressive line-up of academicians, Industry and trade associations, technocrats, conference delegates and NGOs has made this event a success. It was indeed an intense programme wherein various sectors contributing to air pollution, role and responsibilities of stakeholder agencies and the field level implementation status were discussed. This two-day event offered opportunities to interact between regulatory agencies, NGOs, industrial associations, academicians, scholars and experts covering various topics relating to prevention and control of air pollution.

The views expressed and explored on this platform by the resource persons and experts brought many ideas on the table. The Hon'ble Minister of State concluded that the Conference owes its success to the guidance and support of Hon'ble Minister EFCC and the hard work put in by the CAQM team, MoEFCC & GMDA.

The program ended with vote of thanks by Shri Rajesh Kumar, Director, CAQM.
