

Minutes of the 25th meeting of Project Appraisal & Approval Committee (PAAC-EPC)

The 25th meeting of the PAAC-EPC, chaired by Chairman, CPCB, was held on November 16, 2022 via video conferencing. List of participants is placed at Annexure - I.

02. Members of the technical group also participated in the meeting. The committee was briefed about the status of EPC funds and proposals received for consideration at CPCB under said funds. Rs. 291.58 crore has been received in the EPC fund account as on 15.11.2022, out of which Rs. 72.53 crore has been expended with a total committed expenditure of around Rs. 183 crore.

03. A total of 133 proposals have been received, out of which 114 proposals have been placed before the committee. 31 projects have been sanctioned by the committee, 77 proposals have been rejected, 9 proposals are under consideration of TG and 10 proposals are to be placed before the PAAC for taking a decision. 1 new proposal received recently is to be placed before TG and, comments are awaited from concerned ministries/CAQM/departments on 5 proposals.

04. Subsequently, AQM division apprised the committee about the agenda of the meeting, involving deliberations and taking decision on 2 proposals having recommendations of CAQM, 3 projects where final findings are to be presented, 7 proposals having recommendations of TG, one proposal already considered by PAAC and proposed guidelines for funding retrofit/ conversion (to dual fuel) of existing DG sets used in Government Hospitals in Delhi-NCR. The observation and decisions of the committee are summarized below:

i. Proposal for procurement of MRSMs and Water Sprinklers for improvement and management of air quality in Delhi-NCR, submitted by DPCC:

DPCC had submitted proposal for 58 nos. of mechanical road sweeping machines (MRSM) and 34 nos. of water sprinklers, out of which CAQM has recommended 14 nos. of MRSMs and 34 water sprinklers. PAAC was apprised that Steering Committee for utilisation of EPC funds in its 3rd meeting had decided that Greening and paving and other pollution mitigation activities (anti-smog guns, greening/paving, mechanical dust sweepers, road works etc.) not covered under any other scheme may be considered for sanction under EPC fund. Further, DPCC has also indicated that some funding is also

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being received under NCAP for procurement of MRSMs and water sprinklers. MS, DPCC informed that the proposal has been submitted after considering NCAP funding, to ensure that there is no duplication of funds for the same activity. PAAC expressed that EPC funds should not be spent where procurement has already been initiated, and water sprinklers may not be funded. PAAC in-principle approved the procurement of 14 nos. of MRSMs and requested DPCC to submit revised proposal including cost and authorized Chairman, Control Pollution Control Board to approve. PAAC suggested that equipment should be procured along with AMC for 5 years and further O&M cost to be borne by State Govt.

ii. Proposed guidelines for funding retrofitment/conversion (to dual fuel) of existing DG sets used in Government Hospitals in Delhi-NCR:

AQM division informed that Steering Committee in its 3rd meeting held on 03.10.2022 decided that funds may be provided for Installation of Retro-fitted Emission Control Devices (RECD) in DG sets used in Government hospitals in Delhi-NCR. Subsequently, data on DG sets in Government hospitals in Delhi-NCR was obtained and draft guidelines for funding have been prepared by AQM division based on cost information obtained from vendors/ association. Besides, cost of dual fuel conversion kit also obtained in case area has PNG supply. It was proposed to fund 50% of the RECD cost (inclusive of installation and commissioning cost) and dual fuel kit cost, subject to an upper limit specified on the basis of DG set capacity. The remaining cost would have to be borne by State Govt. Funding is proposed to be done for DG sets having at least 5 years of useful life, and at least 10000 hours of operation left, and financial assistance would not be provided for O&M costs. The Concerned State Health department to follow tender process for inviting bids for installation of RECDs and dual fuel kits, and State Health Department shall release 50% of the funds on award of tender (against submission of bank guarantee by the successful bidder) and remaining 50% on installation of RECD/conversion kits.

The proposal was deliberated by the committee. Dr. TK Joshi appreciated the proposal of CPCB, considering that diesel particulate is a carcinogen and public health must take precedence. Since government hospitals are a sensitive receptor, PAAC granted in-principle approval for 100% funding for RECD installation or dual fuel kits, and partial funding for procurement of new gas based generator sets, based on the option availed

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by the hospital. PAAC suggested that CPCB may come out with detailed guidelines in this regard, including terms and conditions for funding, funding pattern, SOP for considering grant of financial assistance, etc.

Chairman, CPCB further expressed that conversion of existing ambulances in government hospitals of Delhi-NCR to electric vehicles may also be considered. It was informed that as per ICAT, approved conversion kits for ambulances are not available in the market yet. PAAC expressed that CPCB may further look into the matter and consider issuing EoI indicating requirement of conversion kits which will provide further incentive to market players for obtaining approval of their kits for further supply.

iii. Proposal for plantation activities, submitted by Faridabad Municipal Corporation): A proposal was submitted by Municipal Corporation of Faridabad for 9 nos. of plantation works in different areas of Faridabad. CAQM has not recommended the proposal, stating that greening/plantation could be better funded through the budget provisions under various bodies/agencies of Govt. of Haryana for a plantation programme. In view of CAQM's recommendation, PAAC decided that the proposal may be rejected.

iv. Final findings of the project titled 'Fuel Losses and Assessment of Air Quality at Selected Traffic Intersection(s) in Delhi', by CSIR-CRRI:

PAAC was apprised that the project awarded to CRRI was completed, and its findings were presented to the Technical Group in its 3rd meeting held on 14.09.2022. The Technical Group had appreciated the work done and had recommended to PAAC that the project may be closed.

PI made a presentation on the objectives, scope and findings of the study. Traffic characteristics at three intersections in Delhi, i.e. CRRI, ITO and Lodi Road, were measured to find relationship between vehicular traffic and observed air quality & meteorological factors. Fuel losses and corresponding idling emissions were estimated and performance evaluation of the CAL3QHC model was carried out to evaluate model's prediction capabilities under Indian traffic intersection set up and mixed traffic conditions. Based on performance evaluation of the CAL3QHC model using various

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statistical parameters, the model performance was found to be satisfactory at all the three selected sites in both summer and winter seasons. Performance of CAL3QHC model was found to be comparatively better for CO prediction as compared to PM_{2.5} predictions for both the seasons. Concentration vs. Distance Plots were also plotted for CO and PM_{2.5} at all 3 Sites for Both Summer and Winter Seasons and for both Weekdays and Weekends, which varied between 200-800m for CO and 500-900m for PM_{2.5}. A standard methodology for estimating fuel losses and corresponding emissions at traffic intersections due to idling of vehicles and prediction and forecasting of air pollution levels at signalised urban Intersection was developed.

Subsequently, various mitigation measures were suggested, such as intelligent management of signalized traffic intersections and vehicular traffic, infrastructural improvements and awareness campaign to “Switch Off” Engines when vehicles are idling for more than 20 seconds at signalize traffic intersections. Suggestions were also made for reducing signal length at ITO intersection, from 240 seconds to 180 seconds, and for exploring feasibility of providing round about instead of the present conventional signalised intersection at ITO and Lodhi Road traffic intersections through a separate detailed study by any expert agency.

The outcomes of the study are helpful in formulating strategies to reduce fuel losses and improvement in the air quality at signalized traffic intersections in Delhi. Validated (traffic intersection) vehicular air pollution model (CAL3QHC) using heterogeneous traffic and site specific meteorology can act as efficient and effective tool for decision/policy makers to make “informed policy decisions” for the control and abatement of air pollution at various traffic intersections.

PAAC accepted the recommendations of the technical group and findings of the project, and recommended to close the project.

v. **Final findings of the project titled ‘Proxy relationship of ultrafine particles number concentration, new particle formation and its growth rate in transport microenvironment in Delhi’, by DTU:**

PI made a presentation on the objectives and deliverables on the project. The study examined the particle number concentration and number size distributions in the Ultrafine and fine size range at road side and background locations in DTU, Delhi, over

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04 months. Nucleation and Aitken mode is contributing more at roadside, while accumulation mode is contributing more at background. Overall, background regions recorded lower concentration when compared to the near roadside location. Also, a shift in GMD (Geometric Mean Diameter) indicates the difference in particles' size at these two different locations, establishing a potential region which can be explored further. PI informed that understanding public exposure, fate and growth rate of UFPs was not possible in the short-term pilot study and, a large data set along with its association with different seasons would be required for the purpose.

The study helps in establishing the concept of UFPs, and lays the groundwork for conducting a further study to understand the relationship of UFPs with gaseous pollutants, different meteorological parameters in different seasons, and also to analyse the potential health impacts on people living in the vicinity of urban transport corridors and people working near to the traffic corridors.

Dr. Hasan, SIAM enquired if source specific mitigation measures for controlling UFPs have also been suggested in the study and if other countries are also working in this field. PI responded that mitigation measures would be primarily related to vehicular sector in transport microenvironment and same was not in the study scope as the overall objective was establishing the concept of UFPs. He added that extensive work is being carried out in Europe on UFPs, while in India, very few studies are available for vehicle tailpipe PNCs.

Dr. TK Joshi sought to know the difference nanoparticles and ultrafine particles, contribution of UFP to total particle count, and the contribution of vehicular emissions to UFPs. PI answered that UFPs are those having size between 10-100 nm, while nanoparticles are generally lower than 10nm. In urban areas, UFPs have been reported to contribute ~80% of total particles number in the ambient air. In case of road microenvironment, vehicular emissions contribute around 70-75%. Signatures are available in literature for identification of fuel-specific UFPs.

PAAC was apprised that the findings were reviewed by TG in its second meeting and TG had recommended that the project may be closed. TG had made certain observations against which response has been received from the PI. Further, TG had suggested that

PI may consider conducting a detailed study for understanding fate of UFPs in the microenvironment.

PAAC accepted the recommendations of the technical group and findings of the project, and recommended to close the project.

vi. Final findings of the project titled 'Impact of Traffic Emissions on Health Amongst Adolescents in Delhi', by IIMMR:

The study findings were examined by TG in its 2nd and 3rd meetings. TG had made certain observations and had recommended closure of the project.

PI briefed that the study was awarded to primarily estimate the association between local traffic exposure and child health conditions in adolescents and to investigate the risk of occurrence of health symptoms in adolescents in relation to the proximity of residential distance to the major roadway by different categories of traffic intensity.

The study found that traffic exposure impacts rhinitis significantly. The impact was more pronounced depending on proximity of homes to residential traffic where majority of the time is spent by school children. Pulmonary function is not significantly affected in children residing close to schools exposed to traffic versus control sites when residential traffic is taken into account. Assessing by residential traffic, cost burden of respiratory diseases for adolescents is substantially higher for those residing near a main road (<100m) versus those who are away from a main road (>100m).

Recommendations of the study include mandating greenery near the major roads and in the surroundings close to the school, scheduling school timings to avoid peak traffic hours, encouraging blended learning (mixture of online and offline classes), promoting public transport and low emission modes, etc. PI also presented the response to the observations made by the TG.

Dr. Hasan, SIAM enquired how specific disease outcomes can be attributed to traffic in particular, as there are various sources affecting ambient air quality.

Handwritten signatures in blue ink.

PI responded that the study was designed to understand the impact of traffic, and agreed that more in-depth studies would be required, involving extensive evaluation of economic aspects, living conditions, and other variables to ascertain the role played by other confounders.

PAAC accepted the recommendations of the technical group and findings of the project, and recommended to close the project.

vii. Recommendations of Technical Group on 7 new proposals:

Seven new proposals were considered by the TG in its third meeting held on 14.09.2022. TG had made specific observations on each proposal, and had recommended to reject these proposals. PAAC accepted the recommendations of TG and rejected the following proposals:

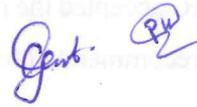
- a) 'Techno-Economic Feasibility and Environmental Impacts of Alternatives to Stubble Burning', submitted by IIT Kharagpur
- b) 'Creating understanding of health hazards due to environmental factors among immune compromised population', submitted by Maulana Azad Medical College
- c) 'Entrapment of vehicle exhaust gases and PM_{2.5} removal from ambient air through innovative systems comprising nanocomposite ceramic cartridge and polyacrylic acid @ zeolitic imidazolate framework-8 nanofibrous membranes', submitted by IIT Roorkee
- d) 'Vegetative barrier design for air quality improvement along road side in megacity Delhi', submitted by IIT Roorkee
- e) 'A localized approach towards climate-adaptive urban localities in NCT Delhi', submitted by IIT Roorkee
- f) 'Air quality Monitoring and Management with Strategic Green Infrastructure at the airshed scale- a GIS-based Tool (AMMGI Tool)', submitted by IIT Roorkee
- g) 'Identification, characterisation and quantification of indoor and outdoor concentration of micro plastics at Delhi', submitted by CSIR-NPL

PAAC expressed that specific observations of TG may also be communicated to the proponents.

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viii. Proposal titled 'Spatial variation and diversity of airborne biological particles in Delhi city' submitted by NIT Surathkal:

The proposal could not be taken up for discussion due to paucity of time.



List of PAAC members:

1. Sh. Tanmay Kumar, Additional Secretary and Chairman, CPCB
2. Dr. Prashant Gargava, Member Secretary, CPCB
3. Sh. Manoj Shrivastava, Director, MoEF&CC (IFD)
4. Sh. VP Mishra, Director, MoEF&CC (CP Div.)
5. Sh. RK Agrwal, Director, CAQM
6. Dr. JBV Reddy, Scientist F, DST
7. Sh. Mahesh S, Scientist, MoRTH
8. Dr. KS Jayachandran, MS, DPCC
9. Dr. BMS Reddy, SEE, DPCC
10. Sh. Utsav, RO-Ghaziabad, UPPCB
11. Representative from Head Office- UPPCB
12. Representative from HSPCB
13. Dr. Rashid Hasan, SIAM

List of Technical Group members:

1. Prof. VK Minocha, DTU
2. Dr. TK Joshi, Health Expert
3. Dr. Shankar Aggarwal, Senior Principal Scientist, CSIR-NPL
4. Sh. Ankush Tewani, Scientist D, CPCB

Invitees:

1. Dr. Anandhi Ramachandran, IIHMR
2. Dr. Nitish Dogra, TERI
3. Dr. Rina Singh, CRRI
4. Dr. Padma Seetharaman, CRRI
5. Dr. Niraj Sharma, CRRI
6. Dr. Mukti Advani, CRRI
7. Dr. Rajeev Mishra, DTU
8. Representatives of Municipal Corporation of Faridabad

9. Sh. NK Chaudhary, Chief Engineer, GMC
10. Sh. Pranav, CE, Municipal Corporation of Delhi
11. Sh. Vikas Jain, SE, Municipal Corporation of Delhi

CPCB Officials:

1. Sh. PK Gupta, Director & Head, AQM Division
2. Sh. Gautam Kumar Sharma, Scientist B, AQM
3. Sh. Toshesh Bhargava, SRF, AQM
4. Sh. Gyantosh, IT Division