

## Minutes of the 27<sup>th</sup> meeting of the Project Appraisal & Approval Committee(PAAC-EPC)

27<sup>th</sup> meeting of the Project Appraisal & Approval Committee (PAAC-EPC) for utilization of EPC funds, chaired by Chairman, CPCB, was held on January 03, 2024 via video conferencing. Members of Technical Group (TG), which evaluates the proposals received for consideration under EPC funds, also participated in the meeting. List of participants is placed at Annexure - I.

02. AQM division briefed the committee about the status of EPC funds and proposals received for consideration under the said funds and that 15 proposals are to be placed before the PAAC for consideration in today's meeting.

03. Out of the said 15 proposals, post-facto approval of PAAC is sought in 06 cases and 09 proposals are to be decided upon by PAAC. The observations and decisions of the committee on the various proposals are summarized below:

### **A. Post facto approval for extension of O&M of the smog tower project:**

The committee was briefed that O&M agreement signed between TPL, CPCB and NBCC for an initial period of 02 years (w.e.f. 06.09.2021). In the last meeting, PAAC had approved extension of O&M and main project till December 2023, for comprehensive testing of new filters developed by IIT Bombay.

Subsequently, a technical committee under chairpersonship of OSD, CSIR has been constituted by CPCB for concluding the recommendations and reviewing overall feasibility of smog tower. The committee's report is expected to be concluded by March 2024. Further, set of spare pre and fine filters is available. Therefore, it was felt that O&M of the smog tower may be extended for 03 months, i.e. till March 2024. As per the O&M agreement, the approval of PAAC is required for extension/termination of O&M of smog tower. Extension is also considered for main project for IITB part, and IITB has also been requested to continue performance evaluation studies till March 2024 and additional fund requirement, if any, has been sought. Hence post-facto approval from PAAC is sought.

PAAC approved 03 months' extension of O&M agreement and main project (for IITB part) till March 2024, with additional cost implication for O&M amounting to Rs. 37,78,317/- excluding applicable PMC charges (15%), taxes, internet/lease line charges, and energy cost (on actual basis).

PAAC expressed that the technical committee should also compare the effectiveness of the smog tower vis-à-vis other air quality improvement interventions, such as paving of roads, use of mechanical road sweepers and anti-smog guns, etc. The committee expressed that the study should be concluded by March end.

### **B. Increase of financial support for pellet plants and financial support for briquetting plants:**

PAAC was briefed that in the 24<sup>th</sup> meeting, it had approved the Guidelines for providing one-time financial assistance for setting up of paddy straw based pelletisation and torrefaction plants.

Subsequently, financial support amount was increased in March 2023 and November 2023 based on the recommendations of the Appraisal Committee and discussions held in the inter-ministerial meeting held in MoEFCC on November 23, 2023. For pelletisation plants, the financial support was increased from Rs. 14 lakhs to Rs. 28 lakhs per TPH, with a maximum financial support of Rs. 1.4 crore per proposal. In case of torrefaction plant, the financial support was doubled from Rs. 28 lakhs to Rs. 56 lakhs per TPH, with a maximum financial support of Rs. 2.8 crore per proposal.

Regarding the status of applications, it was informed that 9 pellet plants (07 in Punjab, 01 in U.P. & 01 in Haryana) have been sanctioned so far at a cost of Rs. 7.95 crore, out of which ~Rs. 3.90 crore have been released. Further, one 05 TPH pelletisation plant in SBS Nagar, Punjab has been approved in-principle.

Further, CPCB in Jun 2023 and Oct 2023 has issued addendum to support setting up paddy straw based briquetting plants by Municipal Corporations, Municipal Councils & Zilla Parishads of Delhi, Punjab, Haryana and NCR districts of Rajasthan and UP, for supply of briquettes to crematoria only. Under the addendum, Rs. 70 lakhs per TPH is provided as financial support, with a maximum support of Rs. 3.5 crore per proposal.

Chairman, CPCB expressed that a meeting of Chairmen and Member Secretaries maybe convened to sensitize about the CPCB guidelines on support for briquetting plants.

Dr. Hasan, SIAM expressed that there are discussions underway for production of bio-char from biomass. This bio-char can be used in soil or can be used for ink or manufacture of other pharmaceutical compounds. SIAM was asked to submit a proposal, clearly indicating the cost and the expected utilization of paddy straw for production of bio-char, for examination by CPCB.

**C. Post-facto approval for 05 project proposals of ULBs for road construction/repair/paving works and procurement of Mechanical Road Sweeping Machines (MRSMs) and anti-smog guns (ASGs):**

The committee was apprised that five proposals were received from ULBs in Delhi-NCR seeking funding for road construction/repair/paving works and procurement of Mechanical Road Sweeping Machines (MRSMs) and anti-smog guns (ASGs). These were got examined from CAQM and subsequently approved, as per recommendations of CAQM, and details are given below:

Name of ULB	Work/Activity	Estimated Cost
<b>Municipal Corporation of Delhi</b>	18 road construction/repair and paving works in Delhi	Rs. 10.61 crore
<b>New Delhi Municipal Council</b>	Procurement of 2 CNG operated Mechanical Road Sweeping Machine (MRSMs) and 3 electric MRSMs	Rs. 10.72 crore
<b>Ghaziabad Municipal Corporation</b>	Procurement of 1 MRSM and 5 Anti-Smog Guns (ASGs)	Rs. 4.25 crore

*Hasan* *Hasan*

<b>Municipal Corporation Faridabad</b>	Procurement of 5 MRSMs and 5 ASGs	Rs. 4.025 crore
<b>NOIDA Authority</b>	Procurement of 4 MRSMs and 5 ASGs	Rs. 5.605 crore

PAAC was apprised that the Hon'ble NGT in OA 638/2023 vide order dated 19.12.2023 has made observations that CPCB is funding National Capital Region Urban Local Bodies for construction/repair of roads and mechanical road sweepers under EPC funds. The Hon'ble NGT has sought response from CPCB on its approach for funding road construction/repair works and procurement of MRSMs, stating these to be the statutory responsibility of ULBs and also complete details of fund utilization. It has also been directed to ensure that amount deposited with CPCB under the head of "Environmental Compensation" is neither diverted nor there should be any financial irregularity as it amounts to misappropriation of funds on the part of CPCB by providing such funds for activities which are not within the domain of CPCB and in the garb of protection of environment, remediation and rejuvenation, the activities which are not directly or indirectly connected with the same but statutory duties of some other statutory bodies should not be undertaken by CPCB.

PAAC was apprised that CPCB is not funding infrastructure works and only supplemental funds are being provided. Further, ULBs/ MCs are to take air pollution control measures/ activities from their own funds including convergence from various schemes. Proposals are considered under EPC funds where ULBs want to implement certain actions for the abatement, control and mitigation of air pollution and these are part of action plan of non-attainment cities but there was no matching source of funds available, and thus CPCB is only supporting initiatives towards abatement and control of air pollution in Delhi-NCR, in a limited way but having potential to control dust emissions, which is the overall objective of utilization of EPC funds as submitted before the Hon'ble Supreme Court. Further, such proposals received for consideration under EPC funds are referred to CAQM for examination and the same are considered by PAAC upon recommendations of CAQM. Further, the projects are sanctioned with the condition that the work should be awarded following due tendering process, and that expenditure is to be made as per provisions of General Financial Rules (GFR-2017) or State Financial Rules, as applicable.

PAAC was informed that funds for implementation of activities of City Action Plans under NCAP is to be mobilized through convergence of resources from various schemes of Central Government and resources from State/UT Governments and its agencies such as Municipal Corporation, Urban Development authorities and Industrial development authorities, etc. Considering the concept of convergence of schemes adopted under NCAP, PAAC during its meeting held on 10.10.2023 had decided that the gap funding for implementation of micro-level action plans for non-attainment cities in Delhi-NCR could be considered depending upon the priority / urgency of the need and also taking into account the funds available. Further, in the meeting dated 23.11.2023 convened by MoEF&CC, it was decided that CPCB will provide funding from EPC funds for critical gaps for implementation of micro-level action plans for non-attainment cities, as well as for other cities in Delhi NCR for control of air pollution at hot spots.




In view of the above, PAAC granted post-facto approval for the sanction of works to 5 ULBs as detailed in table above. However, PAAC expressed that CPCB shall legally examine the order, and authorized MS, CPCB to take further action for release of funds in view of the legal opinion.

**D. Guidelines for DG set retrofitment/upgradation in Govt. hospitals in Delhi-NCR:**

It was informed that the concept for providing financial support for installation of RECDs/dual fuel kits in DG sets and procurement of gas based generator sets in Govt. hospitals in Delhi-NCR was approved in-principle by the PAAC in 25<sup>th</sup> meeting. Subsequently, CPCB in May 2023 had issued guidelines in May 2023 and September 2023, providing 100% funding for RECDs/dual fuels kits and 40% funding for new PNG based gensets. PAAC was apprised that criteria for funding RECD/Dual fuel kit is based on age and no. of operational hours of the DG set and PNG availability

Under the guidelines, consolidated list of DG sets and requirement of RECD/dual fuel kit is submitted by State Health dept. to CPCB. Subsequently, CPCB teams are deputed to ascertain operational status & other details for assessing compliance to criteria. Based on the reports, sanction is provided by CPCB, and funds are released by CPCB to SPCB/PCC for onward release to concerned hospital, with 50% of the financial grant towards capital expenditure disbursed to the concerned SPCB/PCC on award of works and remaining 50% on completion of works. State health department/DGHS/hospital are required to proceed for procurement, installation and commissioning of RECD/dual fuel kits or new gas based generator sets through competitive tendering process. It was informed that financial support for only capital expenditure is provided under the guidelines, and operational/recurring costs are to be borne by the concerned hospital/health department.

PAAC enquired about proposals received so far and the status thereof. It was informed that subsequent to the issuance of the guidelines, proposals have been received from U.P., Rajasthan and Haryana. In case of Rajasthan, no DG set was found meeting the criteria. In case of Haryana, visits by CPCB teams are underway to ascertain operational status. In case of UP, 4 DG Sets in three hospitals (Meerut, Baghpat and Bulandshahr) were found meeting the criteria and Rs. 19.3 lakhs were sanctioned. PAAC granted its post-facto approval for the sanction towards retrofitment of DG sets in UP.

PAAC expressed that CPCB may explore 100% funding for switchover to gas based gensets in Govt. hospitals in Delhi-NCR instead of 40% funding done at present and authorized MS, CPCB to review and decide upon the same.

**E. Recommendations of Technical Group (TG) on 08 proposals:**

Eight new proposals were considered by the TG in its 8<sup>th</sup> meeting held on 30.10.2023. TG had made specific observations on each proposal and had recommended to reject 06 proposals. PAAC accepted the recommendations of TG and rejected the following proposals:

- i. An exploratory study- Assessment of Benzene Concentrations at retail outlets in Delhi post intervention (VRS) submitted by TERI
- ii. Seasonal behaviour and exposure assessment of particle number concentration in urban roadside

microenvironment of megacity Delhi submitted by DTU

- iii. Composite bio-char production from agricultural waste and ferromanganese slag a waste of steel industry to clean air at indoor environment and to improve soil fertility submitted by IIT Roorkee
- iv. Development of Human Resource in Compost Technology for peri-urban waste management submitted by ICAR-IARI
- v. Impact of Depleted Air Quality on Children's Health: A Study of Delhi NCR submitted by IIT Roorkee
- vi. A multi-pronged approach for high-quality, fine-granularity city-wide noise pollution map generation submitted by IIT Roorkee

PAAC expressed that specific observations of TG may be communicated to the respective proponents. Recommendation of TG on two other proposals and observations of PAAC on these is given below:

**i. Creating understanding of health hazards due to environmental factors among stakeholders including school young population, teachers and industrial workers submitted by MAMC:**

Proposal seeks to create awareness and understanding of the health effects caused due to the air pollution in school children (classes 6-8) in Delhi-NCR.

Proposal was divided into three phases. In the 1<sup>st</sup> phase, emphasis would be on content development, and, awareness programmes will be carried out in a limited capacity with a target to reach out to 1500 students. Taking into account the learnings and the feedback received from the first phase, 8,000 students each would be targeted in the second and third phase. TG had recommended approval of Phase-I of the proposal, with the outcomes from Phase-I to be considered before approving further phases.

PAAC expressed that awareness on effects of air pollution has increased to a large extent in recent years and awareness activities are already being undertaken by various governmental and non-governmental agencies. Thus, the proposal may not be required at this stage and rejected the proposal.

**ii. UPPCB proposal for Air Quality Improvement in Uttar Pradesh submitted by UPPCB:**

A proposal was received from UPPCB seeking funding for different activities, such as installation of CAAQMS, manual stations and noise monitoring stations, installation of high mast cameras and display boards, training and capacity building of UPPCB and other stakeholders, third party audit of industries, impact studies of air pollution control & mitigation measures by third party institutions, road dust studies, health impact studies, etc.

TG had recommended that only one component pertaining to strengthening of Air Laboratory may be considered, however, before considering the same, UPPCB may be asked to check if any of the proposed instruments has already been procured.

PAAC agreed with the observations made by TG regarding not funding different components of

 

UPPCB's project proposal. Regarding the laboratory requirements of UPPCB, it was expressed that the same may be met through their own funds. PAAC expressed that EPC funds should be used for gap funding or funding demonstration projects, with the overall purpose of benefiting people at large. Accordingly, the proposal was rejected by PAAC.

**F. Final findings of the project titled 'Delhi air quality experiment: A paradigm shift in source apportionment', awarded to IIT Kanpur:**

The project findings were presented before the Technical Group in its 2<sup>nd</sup> meeting and it had recommended that the project be closed.

Prof. SN Tripathi, IIT Kanpur made a presentation on the objectives, methodology and findings of the project. The objectives of the project were to carry out source apportionment of Particulate Matter (PM), its components (metals, non-refractory components, black carbon) and volatile organic compounds (VOCs) in Delhi. PM<sub>2.5</sub> was characterized using highly time-resolved measurement of non-refractory components including organics, nitrate, sulfate, ammonium and chloride, and refractory components including black carbon and trace metals. In addition, highly time-resolved measurement of gas-phase pollutants such as VOCs and trace gases including CO, SO<sub>2</sub>, NO<sub>x</sub>, and O<sub>3</sub> was conducted on real-time basis.

SoFi (Source Finder), a PM source apportionment tool that uses ME-2 algorithm, was used to provide quick information on major sources of individual PM<sub>2.5</sub> species separately, and also on the overall PM<sub>2.5</sub> sources. To have a complete overview of overall PM<sub>2.5</sub> sources, Double positive matrix factorization (PMF) was performed at IIT Delhi and IITM Delhi. During the summer season at IITD, seven factors were resolved: Industrial, Traffic, Secondary organics, Biomass burning, Secondary nitrate, Secondary sulfate, and Secondary chloride, while during winters, Industrial, Brake & Tyre wear, Traffic, Secondary organics, Biomass burning, Secondary nitrate, and Secondary sulfate were the seven prevalent factors at both locations. Additionally, the secondary chloride factor was resolved at IITM and Fireworks was resolved at IITD.

This approach is novel as usual methods for pollutant measurement and chemical characterization are filter based on offline techniques, which are limited to low spatial and temporal resolution, and the analysis is cumbersome, labor-intensive and time-consuming. Moreover, the concentrations obtained with offline methods vary largely depending on the type of method used. Further, unlike the CMB method, PMF does not require any prior information of the characteristics of the sources and calculates the source contributions entirely by running the mathematical algorithm. The study is unique as granular information on sources at such a high temporal resolution has been obtained with identification of new sources such as cooking and brake & tyre wear. The PI also made sector-specific recommendations, most of which are already in place.

PAAC expressed that the study has been meticulously carried out and the knowledge gained so far should be translated into actions on the ground. PAAC expressed that the findings may be shared with CAQM for further sharing actionable points with concerned stakeholders. Also, a note may be shared with the States on requirements of setting-up and operating a similar system (infrastructure,

manpower, training etc.) with various possible areas of application so that states can also implement this system, if so desired.

It was also decided that final report may be shared with IMD as the information on sources of PM<sub>2.5</sub> could be vital for fine tuning the forecasting models. Further, PI was asked to explore possibility of development of a diagnostic tool which can help identify locations of wastes being burnt in Delhi-NCR.

**G. Final findings of the project titled 'Bi-weekly action plan for effective and efficient management of PM<sub>2.5</sub> concentrations in the Delhi city', awarded to IIT Delhi:**

Dr. Sri Harsha Kota, Associate Professor made a presentation on the objectives, methodology and findings of the project. The objective of the project was to carry out simulations using AERMOD for Delhi, identify hotspots over Delhi and run micro scale simulations for the hotspot regions, simulate scenarios with reduced emissions from different sources as per GRAP and devise potential strategies to reduce the PM<sub>2.5</sub> concentrations.

PI informed that the model performed reasonably well in most of the stations. PM<sub>2.5</sub> concentration at different locations was simulated and impact of interventions on air quality was estimated. These interventions targeted reduction in emissions from crop burning, construction sector, unpaved road dust and industries. Hotspots/Regions with high emissions from industry and unpaved roads were also identified. These reports for winters of 2019 were shared with CPCB and CPCB had deployed its teams then in these hotspots for keeping a check on air polluting activities and also with State Agencies.

PAAC recommended closure of the project.

**H. 'Pilot project to demonstrate the effectiveness of air pollution mitigation by Pariyayatra filtration', awarded to Manav Rachna International Institute of Research and Studies (MRIIRS):**

PAAC was apprised that the said project was sanctioned at a cost of ₹19.74 lakhs. Under the project, filter based air cleaning assembly was installed on rooftop of 50 school/college buses and these were operated in Delhi-NCR. 4 g dust collection per 100 KM run of the bus was reported. The final report was submitted by MRIIRS and the findings were presented before PAAC in its 17th meeting and PAAC had suggested to explore optimum design of filtration system. A Sub-committee, chaired by Prof. Mukesh Sharma, IIT Kanpur, was constituted by DST to discuss feasibility of such technologies, and the sub-committee concluded that technology's results and practical applications are not encouraging, hence any further application may not be useful.

Considering the same, PAAC recommended closure of the project and release of due payments, if any.

Meeting ended with thanks to and from the chair.

\*\*\*



**List of PAAC members:**

1. Sh. Tanmay Kumar, Additional Secretary, MoEF&CC and Chairman, CPCB
2. Sh. Bharat Kumar Sharma, Member Secretary, CPCB
3. Dr. V.K. Soni, Scientist 'F' and Head, EMRC
4. Sh. Mrityunjay Jha, Director, MoPNG
5. Sh. R.K. Agarwal, Director, CAQM
6. Sh. Pradeep Sharma, CEO1, UPPCB
7. Sh. Prasoon Tripathi, Under Secretary, MoEF&CC (CP Div.)
8. Sh. Mahesh, Scientist 'B', MoRTH
9. Dr. Rashid Hasan, Senior Advisor, SIAM
10. Representative from RSPCB
11. Representative from UPPCB
12. Representative from Nagar Palika Prishad Loni

**List of Technical Group members:**

1. Dr. Shankar Aggarwal, Senior Principal Scientist, CSIR-NPL
2. Sh. Ankush Tewani, Scientist D, CPCB

**Invitees:**

1. Dr. S.N. Tripathi, IIT Kanpur
2. Dr. Sri Harsha Kota, IIT Delhi

**CPCB Officials:**

1. Sh. Pankaj Agarwal, Director & Head, AQM Division
2. Sh. Gautam Kumar Sharma, Scientist C, AQM Division
3. Sh. Ajay Kumar, Scientist 'B', AQM Division
4. Sh. Toshesh Bhargava, SRF, AQM Division
5. Sh. Amit, IT Division