Pune Air Action Hub

Date: 24/08/2026

To,
Shri Naval Kishor Ram,
The Municipal Commissioner
Pune Municipal Corporation

Subject: Actionable Recommendations for the Allocation of the ₹105 Crore Air Pollution Mitigation Budget

Respected Sir,

The Pune Air Action Hub is a collective of citizens, researchers and civil society organisations working on air quality and urban environmental governance in the Pune Metropolitan Region. We would like to submit this prioritised fourteen-point programme for the strategic allocation of the **₹105 crore** air quality grant. This proposal is built directly upon the findings of the **PMC Environmental Status Report (ESR) 2025–26**, transforming existing policy commitments into funded, time-bound actions.

Please find the recommendations in the annexure.

We request that the Corporation treat this **₹105 crore** as an anchor for a larger converged programme, aggressively seeking additional funding through **AMRUT 2.0 and Swachh Bharat Mission 2.0** for footpaths and greening.

The Pune Air Action Hub offers to assist in framing detailed specifications for these interventions. We also insist that the budget allocations proposed be shared with stakeholders before finalisation, followed by a round of consultation with experts and organisations working on air pollution along with a plan for appraisal of post intervention outcomes.

Yours faithfully,
For and on behalf of Pune Air Action Hub



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Annexure: Sectorwise Recommendations

TRANSPORT

PMPML Fleet Restoration and Electrification.

- A structured action plan for the conversion of the 204 diesel buses as mentioned in the ESR, with a published schedule and a technical feasibility assessment placed on record.
- A published twelve-year rolling replacement schedule for the whole fleet, so that withdrawals are matched to inductions in advance rather than reported after the fact.
- Bus priority — dedicated lane enforcement and signal priority at high-delay junctions, drawing on the RAMS record of 890 junctions to identify candidates. Service reliability, not vehicle technology, determines mode shift.
- Last-mile access at high-ridership stops and Metro interchanges

Remote-Sensing High-Emitter Identification and identification of high emission zones for focused interventions

Develop robust and continuous monitoring to measure the effect of congestion and seasonal air pollution variation on citizens' physical and mental health, and to strictly enforce pollution control certificate rules for public vehicles.

Across studied fleets internationally, roughly ten per cent of vehicles typically account for around half of emissions. Roadside remote sensing — established practice in Hong Kong, Denver, Beijing and across the European Union — measures actual on-road emissions from passing vehicles, and is considerably more effective than a periodic certification regime that tests vehicles under non-representative idle conditions. Recommendations as follows;

- Roadside remote-sensing units deployed on rotating high-volume corridors, integrated with ANPR and the VAHAN database.
- Notices to identify gross emitters requiring re-test within a fixed period, escalating to registration action through the Regional Transport Office.
- Audit of PUC centres against remote-sensing data. Divergence between a vehicle's certificate and its measured on-road emission is direct evidence of certification failure and should trigger centre-level action.
- **A formal memorandum of understanding with the Transport Department and RTO before tender.** Enforcement power over registration and PUC certification does not sit with PMC. We ask that this line not be tendered until that instrument is executed.
- Identification of high emission areas and implementation of Low Emission Zones.

Implementation of Public Bicycle System

The Public Bicycle System is an important element of Pune's approved Comprehensive Bicycle Plan, and if implemented could increase cycling trips and augment first and last mile connectivity to the Metro.

DUST MITIGATION

Wet Mechanical Sweeping and Silt-Load Management

National assessments have found mechanical sweepers procured under NCAP frequently unused or ineffective, with substantial allocations made across cities without demonstrated improvement in the road dust problem. Approximately 64 per cent of all NCAP and Fifteenth Finance Commission expenditure nationally has gone to dust management of this general type, with weak measured PM10 improvement to show for it.

The conclusion is not that sweeping is worthless, but that it must be procured differently. Dry sweeping resuspends fine particulates and can worsen PM2.5 at kerb level. Payment by machine count or by kilometre swept creates no incentive to actually reduce silt. Payment against measured silt loading does.

Keeping this in mind, please find the recommendations below;

- Wet vacuum-assisted regenerative-air sweepers only. Dry mechanical brooming prohibited on the arterial network.
- Purchase rather than rental, with the maintenance contract bundled at procurement. Over a seven-year horizon this is materially cheaper on published comparative figures.
- **Payment structured against measured reduction in silt loading (g/m²) on defined corridors, sampled monthly by an independent agency.** This is the variable that drives the emission factor and it is directly measurable. We ask that no contract be signed which pays on any other basis.
- Deployment on arterial and sub-arterial roads only. Sweeping narrow Peth streets is operationally infeasible and should not be attempted.
- Tertiary-treated effluent for the water component, drawn from the same infrastructure as Intervention 7.
- Monthly publication of machine utilisation data. The documented national failure mode is idle machines; transparency is the cheapest available countermeasure.

CONSTRUCTION

Construction and Metro Phase-II Dust Enforcement Regime

The Environmental Status Report cites the ARAI 2022 Pune District emission inventory for the finding that construction and allied sectors account for approximately 23 per cent of PM10 emissions, and records that this figure was cited in PMC Circular No. Addl.MC(East)/Parya/839 dated 15 December 2025.

The report attributes the winter rise in concentrations partly to fugitive dust from major infrastructure projects including Metro Phase-II. It records that PMC has issued a circular requiring IITM-developed sensor-based real-time air quality monitoring systems and LED dust intensity displays at all construction projects above 5,000 m².
Recommendations as follows;

- A site-specific Dust Management Plan as a mandatory condition of commencement, approved before the commencement certificate issues.

- **A refundable dust compliance deposit, scaled to plot area, released only on issue of the occupancy certificate and subject to deduction for recorded violations.** This aligns developer cash flow with compliance and requires no new statutory power.
- A public compliance dashboard by project and by developer, drawing on the sensor and LED display data the Corporation already requires at sites above 5,000 m². That data is presently collected but not published; publishing it is close to costless and is the most effective enforcement mechanism available in this sector.
- Geo-tagged, time-stamped photographic compliance evidence uploaded weekly, verified by random physical inspection of a 15 per cent sample.
- **Extension of the same regime to Metro Phase-II and to PMRDA works, including the Inner Ring Road and the proposed Yerwada–Katraj twin tunnel.** The ESR names Metro Phase-II construction dust as a driver of the winter deterioration and separately notes that Inner Ring Road works are likely to generate dust emissions over several years. These are the largest construction dust sources in the city and they are not municipal projects. We request that PMC conclude written dust management agreements with Maha-Metro and PMRDA, with monitoring data reported to the same public dashboard, and that the Corporation state publicly what enforcement powers it considers itself to hold over these works.
- Continuous ambient air quality and Lden monitoring at all major C&D and infrastructure sites.
- Procure a **mobile CAAQMS van**, comparable to the unit operated by **MPCB**, specifically to calibrate the low-cost sensors (LCS) already mandated at construction sites. This will create an independent verification mechanism, enabling PMC to validate (or dismiss) resident complaints with calibrated data rather than relying solely on site-reported readings. *(Note: The MPCB mobile van monitors the full suite of pollutants listed under NAAQS 2009, including VOCs.)*
- Procure **drones** equipped with **CAAQMS** capability that can simultaneously survey up-wind and down-wind conditions. The purpose is to generate real-time source-apportionment and dispersion models, allowing rapid identification of which construction activities are actually driving elevated concentrations and enabling targeted enforcement instead of blanket action.
- Establish a PMC-owned pool of **LCS-CAAQMS** units and the associated network infrastructure that can be **rented** to smaller construction sites. This closes the current monitoring gap: larger sites already face sensor mandates, while smaller sites remain unmonitored and therefore unaccountable.
- Augmentation of C&D processing capacity. The ESR records approximately 250 MT per day generated against a 250 TPD plant, with a second plant planned at Mangdewadi. An enforcement regime without spare disposal capacity produces fly-tipping rather than compliance; we ask that the Mangdewadi plant be sequenced ahead of, not behind, the enforcement drive.
- A published penalty schedule, and publication of the enforcement record including the number of notices issued, deposits forfeited and prosecutions launched. Deploy dedicated **PMC marshal vehicles** on a 24×7 basis to monitor dust pollution from construction sites of all sizes. Continuous physical presence is required because intermittent inspections have proven insufficient to deter violations outside office hours.
- Create a **PMC leasing** facility for tin sheets and **tadpatri** (tarpaulin) sufficient to enclose the full height of a **construction** site/building plus an additional 9 metres.

The objective is physical containment of fugitive dust, particularly during demolition, where open façades currently allow unrestricted dispersal into neighbouring areas.

- Sponsor **PUC certification** for **construction-site vehicles** and **DG**/diesel generator (DG) sets that fall outside the RTO's regular PUC regime. This extends emission accountability to a major on-site source that presently escapes routine scrutiny.

OPEN BURNING

Open burning is disproportionately harmful relative to its tonnage. It produces fine organic carbon, polycyclic aromatic hydrocarbons and, where plastics are present in the mixed waste, chlorinated dioxins and furans. It occurs at ground level, in residential compounds, in the evening — precisely when the boundary layer is collapsing and the ESR records winter inversion trapping pollutants near the ground. A ranking of interventions by particulate mass alone will under-fund this measure.

Strengthening of the Flying Squads

- Increase the vehicle fleet to effectively cover the entire city with a special focus on chronic spots. The vehicles should have fire dowsing equipment.
- Allocation of dedicated manpower for the squads to ensure 24x7, timebound response to waste burning complaints.

Fixing the grievance redressal mechanism for waste burning complaints

A published complaint channel for open burning, with a stated response time, and publication of the enforcement record. The ESR itself observes, in relation to riverside dumping, that physical measures alone have proved insufficient and that sustained public awareness and citizen participation are required. The current grievance redressal mechanism suffers from lags in routing complaints to the responsible persons and makes lodging complaints complicated with an uncertain response time.

Fires in Landfills

Identify deep-seated landfill fires using thermal monitoring, then use **controlled underground injection of water or another suitable suppressant** to reach the burning zone directly, with temperature and gas monitoring to confirm the fire is fully extinguished.

Decentralised Biomass Shredding and Mulching

This will help give effect to the Corporation's prohibition on open burning by providing housing societies, schools, campuses and commercial complexes with the means to process garden and leaf waste on site.

The Environmental Status Report records that PMC has issued a public notice prohibiting the open burning of biomass, plastic, rubber and any other waste, and identifies open burning of biomass and waste as a contributor to the city's air pollution. Rule 4(3) of the Solid Waste Management Rules, 2016 independently requires bulk waste generators to process biodegradable waste on their own premises.

A prohibition on burning garden waste is only enforceable if there is somewhere else for the waste to go. At present, for most societies, there is not. This intervention supplies the missing half of an existing prohibition. We recommend;

- Subsidy of 60 per cent of equipment cost, capped at ₹1.2 lakh, for shredders procured by registered housing societies, schools, hospitals, campuses and commercial complexes; 75 per cent for schools and public institutions.
- Linkage to the Corporation's existing property tax rebate for on-site waste processing, so that capital support is reinforced by a recurring incentive to keep the machine operating.
- Ward-level mulching hubs with larger-capacity equipment, serving societies too small to justify their own unit, on a booked-slot basis.
- A three-year comprehensive maintenance contract with the supplier as a condition of subsidy release. These programmes fail on blade replacement and motor burnout, not on capital.
- A defined mulch offtake route established before machines are delivered — the PMC garden department, median and verge planting under Intervention 7, and the urban farming network. Unsold mulch becomes a nuisance and the equipment falls idle.

CREMATORIA

Upgradation of all crematorium sites operated by Pune Municipal Corporation is proposed under the following heads, and every crematorium must have an electric/ gas cremation facility.
Setting up a committee with members of PMC, scientific institutions and affected citizens to oversee the following :

Regulatory & Environmental Assessment Foundation

- Consent from MPCB to PMC to Operate, Environmental Clearance (EC), EIA, and Carrying Capacity Analysis — for Vaikunth as the first site, and for each of the remaining ~70 sites. This will ensure that the environmental impacts of crematoria are identified, quantified and appropriate actions to minimise hazardous impact can be planned accordingly.
- Computational Fluid Dynamics (CFD) analysis for Vaikunth and one other prominent site, covering (a) combustion efficiency at peak corpse-loading conditions, and (b) duct/APCD/stack flow-rate modelling to prevent backdraft where infrastructure — APCD, ducts, or stack — is shared across multiple incinerators.

Continuous & Real-Time Monitoring

- CEMS (Continuous Emission Monitoring System) on each chimney/stack, monitoring particulate matter along with SO_2, NO_x, VOCs, benzene, and mercury.
- OCEMS (Online Continuous Effluent Monitoring System) for the water discharged from wet APCD systems — PMC already operates this system at its STPs.
- CAAQMS (Continuous Ambient Air Quality Monitoring Stations) at identified hotspots/receptor zones within the impact study area, using electronic sensors capable of also monitoring VOCs.

Air Pollution Control Device (APCD) Upgrades & Reliability

- Dedicated automatic DG power backup for the APCD system. PMC's main electrical incinerators already have fault-tolerant power backup; the APCD system currently does not, and needs one.
- Combination wet–dry scrubber systems: a wet stage (Venturi or sprinkler) cascaded with a dry stage (ESP or bag filter), sized to the number of connected incinerators .
- Chimney/stack height of 80–150 metres, calibrated to 2½ times the height of the tallest building PMC may approve within the impacted zone — typically a 500-metre radius. (INR25 lakh for a single SS chimney)
- Automated water refilling for wet APCD systems.
- Full enclosure (3 sides) of wood-pyre APC sheds, to prevent lateral leakage of unfiltered emissions.
- Pneumatic hood-lowering system, informed by CFD analysis, for wood-pyre canopies — to achieve near-complete (100%) smoke pickup. A significant share of smoke currently escapes sideways under the existing fixed-hood design. (EOI, expression of Interest is essential)
- Higher-capacity suction blowers for all APC sheds. Existing units are underpowered and prone to burnout under sustained operation; more robust, higher-duty machinery is required to draw smoke from the pyre platform into the APCD. (EOI, is essential)

Incinerator & Combustion Design Standards

- Two-chamber incinerators for complete combustion, across all incinerator types including wood pyres, to ensure effective destruction of toxins — consistent with the standard MPCB has already enforced for crematorium incinerators under the Bio-Medical Waste Management Rules, 2016, in the Mumbai (Borivali) NGT judgement[1].
- Incinerators and blowers rated for higher corpse mass and moisture content — up to 120 kg (not uncommon in practice), and capable of handling bodies from mortuaries, hospitals, or drowning cases with high water content. Existing units are designed around a legacy 60 kg "standard" corpse and are inadequate for this range.

Smart Load Management & Public Transparency

- Real-time crematorium load tracking: online status of incoming corpses, cremation-pass status, and a 12-hour load forecast per site — enabling reassignment of cremations to sites with lower pollution burden or shorter wait times.
- On-site LCD display at each crematorium showing current and upcoming load alongside current and projected AQI (forecasting methodology comparable to systems already used by ARAI).
- Public awareness campaign: newspaper advertisements listing all operational crematorium sites, to encourage even distribution of load — supported by a dedicated webpage per site with contact numbers, nearest pass-issuing centre, facilities, timings, and live load status. Visible load data itself signals an active, monitored facility to the public.
- CCTV coverage and adequate illumination at all emission points, with the live feed published in the public domain.

[1] https://indiankanoon.org/doc/126865159/

Public awareness

Public campaigns and proactive information dissemination must be executed to encourage electric and gas cremation. Content and activities in English and Marathi must be carried through the ward structure, hospitals, housing societies and funeral service providers.

Other necessary facilities

- **Dignity of the facility.** Adequate waiting areas, shade, seating, water, sanitation, parking and accessible approach at every ground. Families do not choose a facility that treats them poorly, and no emission benefit accrues from a well-specified furnace in a badly-run ground.
- **Ritual accommodation.** Provision for the observances families expect — space for last rites, a designated place for the priest, and arrangements for ash collection — designed in consultation with cremation ground trusts and the priest community before procurement rather than after. We request that this consultation begin immediately and that its minutes be placed on record.
- **Operator training and staffing.** Certified operators at every ground, with a five-year comprehensive maintenance contract bundled into the supply tender and paid against verified functionality.

CLEAN FUEL MANDATE FOR FOOD ESTABLISHMENTS

To give effect to the Corporation's public notice of 23 September 2025 by funding the transition of bakeries, hotels, restaurants, food stalls, dhabas and tandoor establishments away from firewood and coal, and by establishing a verification and compliance cadre.

Environmental Status Report 2025–26 records that as per MPCB directives, the Environment Department issued a public notice on 23 September 2025 making it obligatory for bakeries, hotels, restaurants, food stalls, dhabas and tandoor establishments to use clean fuels — LPG, PNG or electricity — in place of firewood and coal. The report identifies emissions from such establishments using traditional solid fuel as a contributor to the city's air pollution.

The mandate exists. What does not exist is the means of complying with it. The establishments affected are overwhelmingly small, frequently unlicensed, and operating on thin margins. A conversion to a piped gas or electric oven is a capital cost they cannot readily absorb, and the connection charge is often a larger barrier than the appliance itself. Enforcement without transition finance will produce evasion by the smallest operators and closure of some, without producing the intended emission reduction.

- Prior to the proposal of any conversion subsidy, PMC should first conduct a survey to establish baseline data on the number of bakeries currently using wood, coal and diesel, and assess how many are willing to transition to cleaner fuels such as PNG, LPG, CNG or electricity. This will help determine the actual requirement and inform an appropriate subsidy mechanism.

  Based on the survey findings, PMC can consider providing financial support under NCAP funds to bakeries that contribute significantly to air pollution, while also exploring other financial support mechanisms, including MNGL subsidies and schemes such as the Prime Minister's Formalisation

of Micro Food Processing Enterprises Scheme.(PMFMFE)to facilitate their transition to cleaner fuels.

- A negotiated bulk waiver of connection charges with Maharashtra Natural Gas Limited, together with priority commissioning for establishments converting under the scheme.
- A separate, simpler grant track of ₹15,000 to ₹25,000 per unit for street food vendors, routed through registered vendor associations under the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014, so that unregistered status does not become a disqualification.
- Disbursement conditional on physical surrender and decommissioning of the solid fuel oven, recorded by geotagged photograph, with a two-year undertaking against reinstallation.
- A verification cadre within the Food and Licence Department, and a re-inspection sample of not less than 10 per cent in the second year. Reversion after inspection is the predictable failure mode of every scheme of this type.
- Publication of a quarterly compliance return: establishments surveyed, converted, subsidised, found non-compliant, and prosecuted. We request that this return be placed in the public domain, since the notice was itself issued publicly.

SOLAR AND EFFICIENT WATER HEATING PROGRAMME

Domestic solid fuel combustion is identified in the ESR as a contributor to Pune's air pollution.

Slum, chawl and EWS component

- Community-scale solar water heating serving clusters of households at community bathing facilities, chawls and SRA buildings, rather than individual household units, which are impractical where roof rights are contested.
- Roof tenure resolved explicitly before installation. Siting on community buildings, anganwadis and municipal structures where tenure is clear. The ESR notes that information on basic services in many un-notified settlements remains incomplete; the survey undertaken for this programme should be designed to fill that gap and its findings shared with the relevant departments.
- Provision free at the point of use in this segment. A co-payment requirement would exclude precisely the households whose wood displacement matters most.

Non-slum retrofit component

- A 40 per cent rebate, capped at ₹12,000, for replacement of a wood-fired bath boiler with a BIS-certified solar water heater or heat-pump water heater, conditional on verified decommissioning of the boiler.
- Target households identified through the property tax database — older properties, low piped gas connection density — combined with ward-level survey, rather than through self-selection, which would otherwise direct subsidy to households that had already switched.
- Parallel enforcement of the existing solar water heating requirement for new construction under the building regulations.

Provisions common to both

- MNRE-approved, BIS-certified systems only, with a minimum five-year comprehensive maintenance contract bundled into the supply tender and payable in annual installments against verified functionality.
- **A thermostatically controlled electric backup element on every system installed.** This is the decisive design provision. A solar system that fails during the monsoon or a cold December week returns the household to wood, and the emission saving is lost in exactly the season when the ESR records the shallow inversion layer trapping pollutants at ground level.
- A trained and certified local maintenance cadre through SHG and ITI partnerships, funded within this line and linked to the Intervention 5 fund. Maintenance access, not capital cost, determines whether these systems are still working in year five.
- Data logging on a two to three per cent sample to verify actual utilisation. We ask that the Corporation report this programme on measured wood displacement, not on units installed. Reporting installations as though they were outcomes is the standard failure of this scheme type.

HEALTH PROTECTION AND EXPOSURE REDUCTION

To reduce the health burden of the pollution that will remain during the years in which the source measures take effect. Emission reduction is a multi-year project; exposure protection can begin immediately.

We recommend that the Corporation constitute a public health committee, including medical and mental health specialists, to study the effect of environmental degradation on citizens' health, and to make active use of corporate social responsibility funds for such initiatives.

- An AQI-linked advisory protocol for schools and anganwadis, with defined thresholds triggering suspension of outdoor activity, communicated automatically through the Intervention 14 platform.
- A filtration pilot in schools and anganwadis in the highest-exposure wards, with measured before-and-after indoor concentrations.
- **Certified respiratory protection and rotation protocols for the occupational groups with the highest exposure.** The ESR records 5,251 permanent sanitation workers, 4,818 contractual workers and 3,800 SWaCH members — 10,069 people working directly in street cleaning and waste collection. Traffic police, street vendors and cremation ground staff face comparable exposure. This is a direct municipal duty of care and is presently unmet.
- The festival-period air and noise testing programme, with results published against non-festival baselines at the same stations.
- Integration of respiratory and cardiovascular presentation data from PMC hospitals with the air quality dashboard, supporting the public health committee recommended earlier.
- A sustained public communication programme through the ward structure, in Marathi first.

GOVERNANCE AND DECISION SUPPORT SYSTEMS

Clean Air Cell, Ward Committees and Source Apportionment Refresh

The recurring national finding is that clean air programmes fail on administrative capacity rather than on money. A substantial share of NCAP funds nationally has remained unutilised; cities have abandoned procurements and surrendered allocations for want of officers to run them. A capital programme of this size delivered by officers holding it as an additional charge alongside their substantive duties will underperform, and this is documented well enough to be treated as the expected outcome rather than a risk.

Implementation norms we request

- A dedicated Clean Air Cell of six to eight officers reporting to an Additional Municipal Commissioner — an environmental engineer, a data analyst, a procurement specialist, an enforcement coordinator, a communications officer and support staff — funded for three years within this budget, with a committed transition to the regular establishment thereafter.
- Constitution of ward-level environment committees, with published composition, meeting calendar and minutes. We offer our members' participation in these committees.
- **A time bound completion of Emission Inventory within 6 months of the award and before the initiation of revision on Clean Air Action Plan for 2027-28, with 2025 as the base year, reflecting old and new PMC boundaries for comparison and analysis will be crucial to inform strategic decisions for NCAP 2/ upcoming funds. A sub-committee of SPCB officer, PMC Environment Officer, local Civil Society Representatives, and the appointed research agency must be formed to ensure that outcomes of the study are used effectively and without a lag for air pollution mitigation.**
- Formal stakeholder consultation in the ESR process, and a six-month preparation window.
- Quarterly public reporting against the physical and financial targets in Part V, published on the PRANA portal and on the Corporation's own site.
- A technical advisory group including MPCB, IITM Pashan, a public health institution and civil society organisations already active on Pune air quality, meeting half-yearly with published findings.