

राष्ट्रीय राजधानी क्षेत्र और निकटवर्ती क्षेत्रों में वायु गुणवत्ता प्रबंधन आयोग

Commission for Air Quality Management in NCR and Adjoining Areas

17 वीं मंजिल, जवाहर व्यापार भवन (एस. टी. सी. बिल्डिंग), टॉलस्टॉय मार्ग, नई दिल्ली-110001

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Dated: 28.07.2026

To,

The Chief Secretaries, Government of Punjab/ Haryana/ Uttar Pradesh/
Rajasthan

Subject: Use of Drones for Monitoring Stubble Burning Incidents – reg.

1. Delhi-NCR experiences poor to severe air quality during the harvesting months, as large-scale paddy stubble burning in Punjab, Haryana, and western Uttar Pradesh significantly elevates PM_{2.5} concentrations. The smoke transported by prevailing winds combines with local emissions and stagnant weather, intensifying the pollution levels. This seasonal practice has been recognized as a major source of pollution impacting air pollution in the region during the harvesting season.
2. The Commission had provided a broad Framework to the States concerned for control/ elimination of crop residue burning and directed them to draw up detailed State-specific Action Plans based on the major contours of the Framework, on a year-to-year basis.
3. Guided by the Commission, ISRO/IARI developed a standard protocol, in consultation with major stakeholders for recording and monitoring crop residue burning events and burnt area estimation to avoid a diverse assessment of fire events/counts.
4. While there is reduction in paddy stubble burning events as per the standard protocol, it has been reported that late evening burning incidents are occurring to evade satellite-based detection. The alleged practice of burning paddy stubble during the late evening hours to evade satellite monitoring requires close attention and calls for a strengthened surveillance and monitoring mechanism.
5. Reducing these episodic pollution spikes depends on precise, timely detection of burning events, robust surveillance and coordinated enforcement. Expanding reliable drone and ground-based monitoring, strengthening inter-agency coordination and implementing data-driven response protocols for rapid verification and targeted action are, therefore, urgent priorities to prevent stubble burning incidents.
6. The use of unmanned aerial vehicles (UAVs), commonly known as drones, has emerged as a tool for monitoring and enforcing regulations against stubble burning. Drones combine rapid deployment, high-resolution, real time imaging and flexible flight patterns to detect fire

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hotspots, map affected areas and gather time-stamped visual evidence that is difficult to obtain through ground patrols or satellite imagery alone.

7. Currently, drones are used by several Government agencies for applications such as monitoring of works under various schemes, survey of Digital Aerial Images of Mining areas, Recording of High-resolution Imagery for the Highway Projects during Development etc.
8. In the above context, the Commission is of the view that the State Governments may take a lead and initiate actions for drone based surveillance for prevention and control of stubble-burning in letter and spirit to ensure complete elimination of stubble burning, *inter alia*, focusing on the following:
 - i. For effective monitoring, compliance of provisions of the Drone Rules, 2021, as amended from time to time and relevant instructions of the Competent Authority shall be ensured.
 - ii. Drone-based surveys shall be conducted in a lawful, safe and systematic manner to ensure accurate detection, geo-tagging, documentation and reporting of stubble burning incidents for timely action by the concerned authorities.
 - iii. The monitoring area should cover paddy/ wheat cultivation area, especially in identified hotspot villages with the objective of covering active burning incidents, areas with burnt traces and mapping with the cadastral map of the area. The drone flight path plan and the number of drone flights to be undertaken to cover the fire-prone area shall be prepared in advance.
 - iv. The drone deployed for stubble burning monitoring shall be equipped with Global Navigation Satellite System (GNSS)-based positioning (in metre resolution), geofencing, return-home functionality, flight data logging and a high-resolution RGB camera capable of capturing clear geotagged images and videos, with live-streaming capability, geotagged imagery/ videos of burning sites, smoke plumes, fresh/ old burnt areas and surrounding field boundaries.
 - v. The drone survey shall be conducted during the day, with particular focus on late evening hours (specially targeting 3-9 P.M.) to monitor the stubble burning.
 - vi. Before undertaking the drone based monitoring, each hotspot village or identified monitoring block shall establish sufficient number of well-distributed Ground Control Points (GCPs).
 - vii. To maintain consistency in image quality, the drone survey should preferably be carried out during clear weather for detecting active fire locations, smoke spread and surrounding field conditions. The coordinate reference system used for drone survey images shall be World Geodetic System (WGS84) based geographic coordinates, with output products also prepared in the appropriate projected system. All GCP data and reference point coordinates shall be recorded accurately to ensure consistency, traceability and interoperability of survey outputs.

- viii. The captured monitoring videos shall be retained in the central database of the State Government till 3 months after the related harvesting season. A centralised dashboard shall be created by the State Govt. for data analysis and reporting. All drone-captured videos (including live streaming) must be given access to the Integrated Command and Control Centre (I3C) of CAQM.
- ix. Prioritising deployment and operation of modern drone platforms, supporting equipment suitable for surveillance tasks, and establishing operational guidelines that meet defined technical and operational standards.
9. The Action Taken Report on the above may be submitted to the Commission by 14th August, 2026.
10. This issues with the approval of the competent authority.


(Tarun Kumar Pithode)
Member-Secretary

Copy for information and appropriate action, to:

1. ACS/Principal Secretary, Environment Department, Govt of Punjab
2. ACS/Principal Secretary, Environment Department, Govt of Haryana
3. ACS/Principal Secretary, Environment Department, Govt of UP
4. ACS/Principal Secretary, Environment Department, Govt of Rajasthan
5. ACS/Principal Secretary, Environment Department, GNCTD
6. ACS/Principal Secretary, Agriculture Department, Govt of Punjab
7. ACS/Principal Secretary, Agriculture Department, Govt of Haryana
8. ACS/Principal Secretary, Agriculture Department, Govt of UP
9. ACS/Principal Secretary, Agriculture Department, Govt of Rajasthan
10. ACS/Principal Secretary, Agriculture Department, GNCTD
11. Member Secretary, Punjab Pollution Control Board
12. Member Secretary, Haryana State Pollution Control Board
13. Member Secretary, Uttar Pradesh State Pollution Control Board
14. Member Secretary, Delhi Pollution Control Committee
15. Member Secretary, Rajasthan State Pollution Control Board

Copy also to:

The Chairperson and all Members, CAQM


(Tarun Kumar Pithode)
Member-Secretary