

A photograph of a busy road in New Delhi, India. In the foreground, a shirtless man wearing blue shorts is working with a broom on a dirt shoulder. The road is filled with cars and a motorcycle. In the background, a large, curved bridge spans across the road. The sky is hazy, suggesting air pollution. The text is overlaid on the image in red and black.

**EPCA Press Conference:
Status and action to be taken
under Graded Response Action
Plan in Delhi NCR**

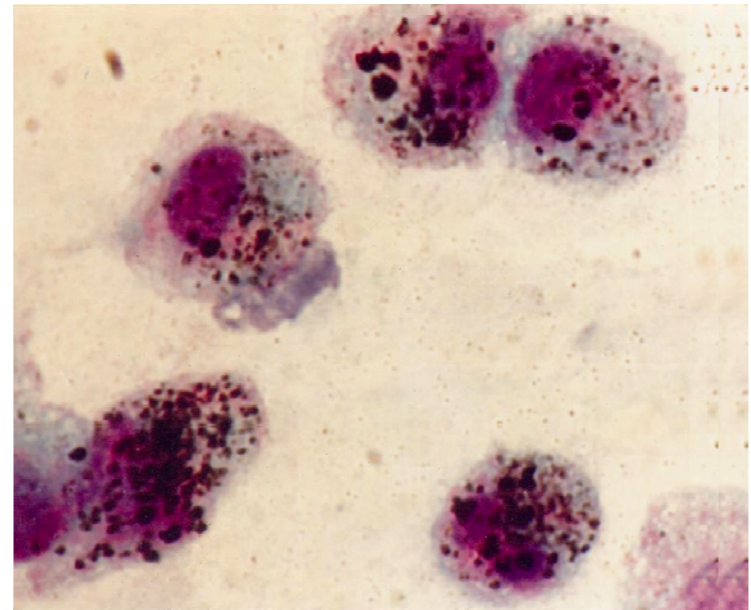
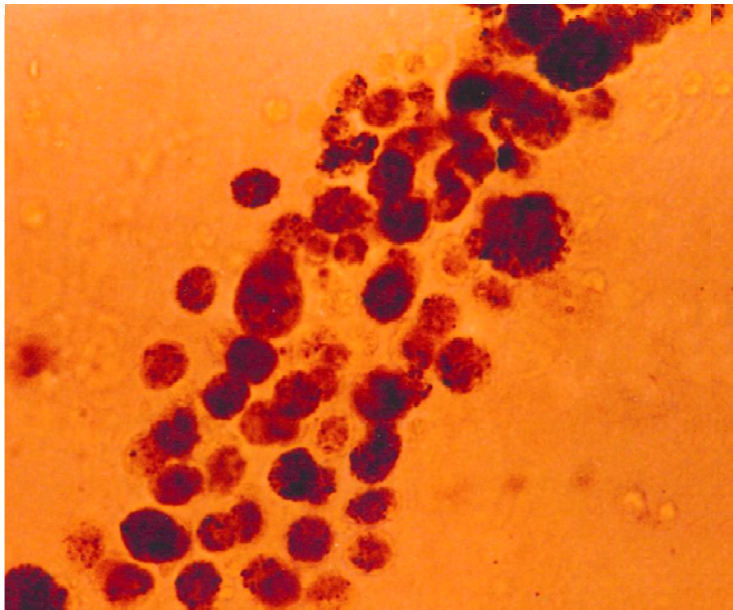
October 17, 2017

New Delhi

Deadly for our health Not dust. But toxin in air

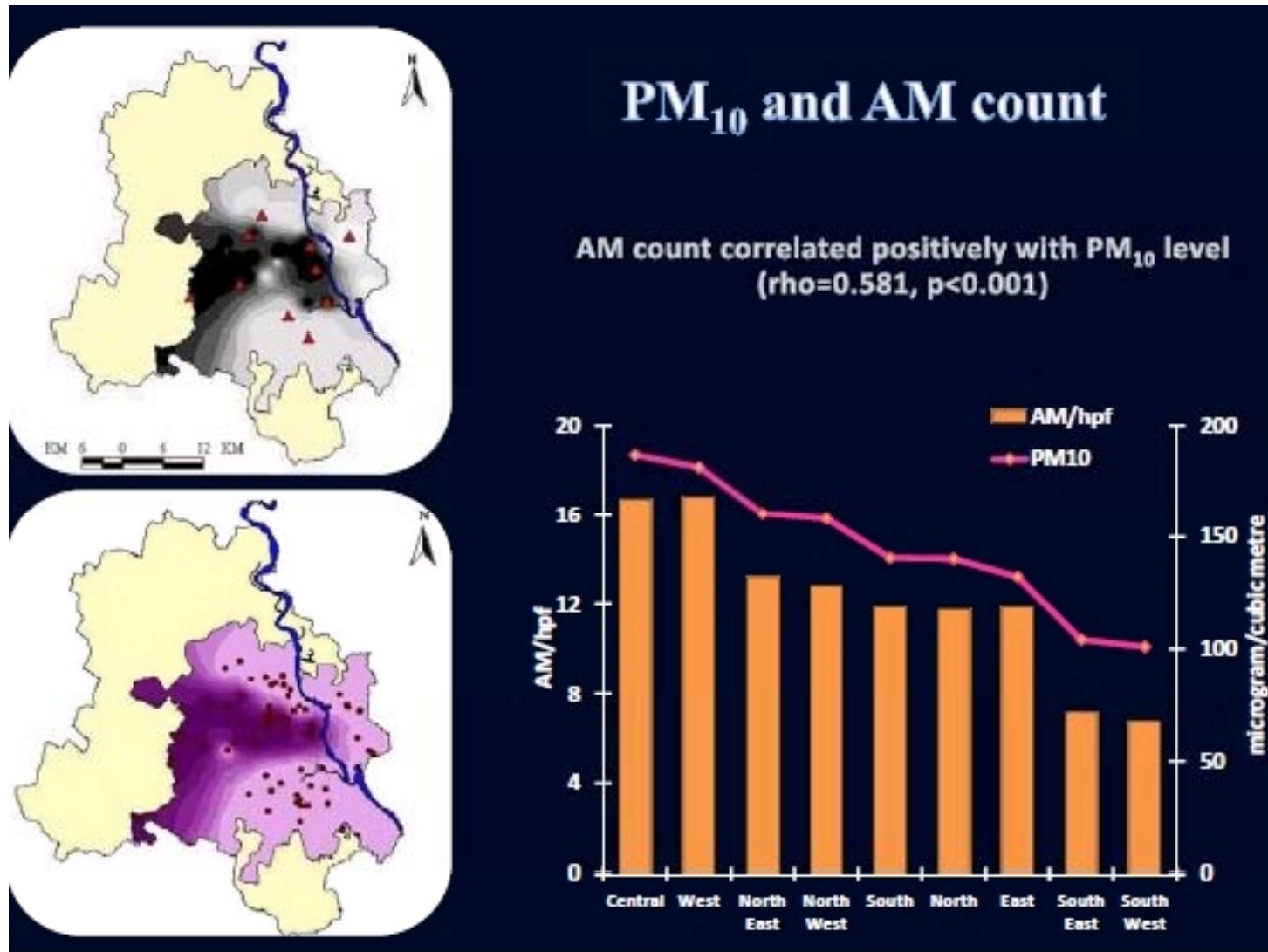
- **2012 epidemiological study on children in Delhi. Covered 11,628 school-going children from 36 schools**
- **Every third child has reduced lung function. Sputum of Delhi's children contains four times more iron-laden macrophages than those from cleaner environments, indicating pulmonary hemorrhage**

Alveolar macrophage: the biomarker of air pollution



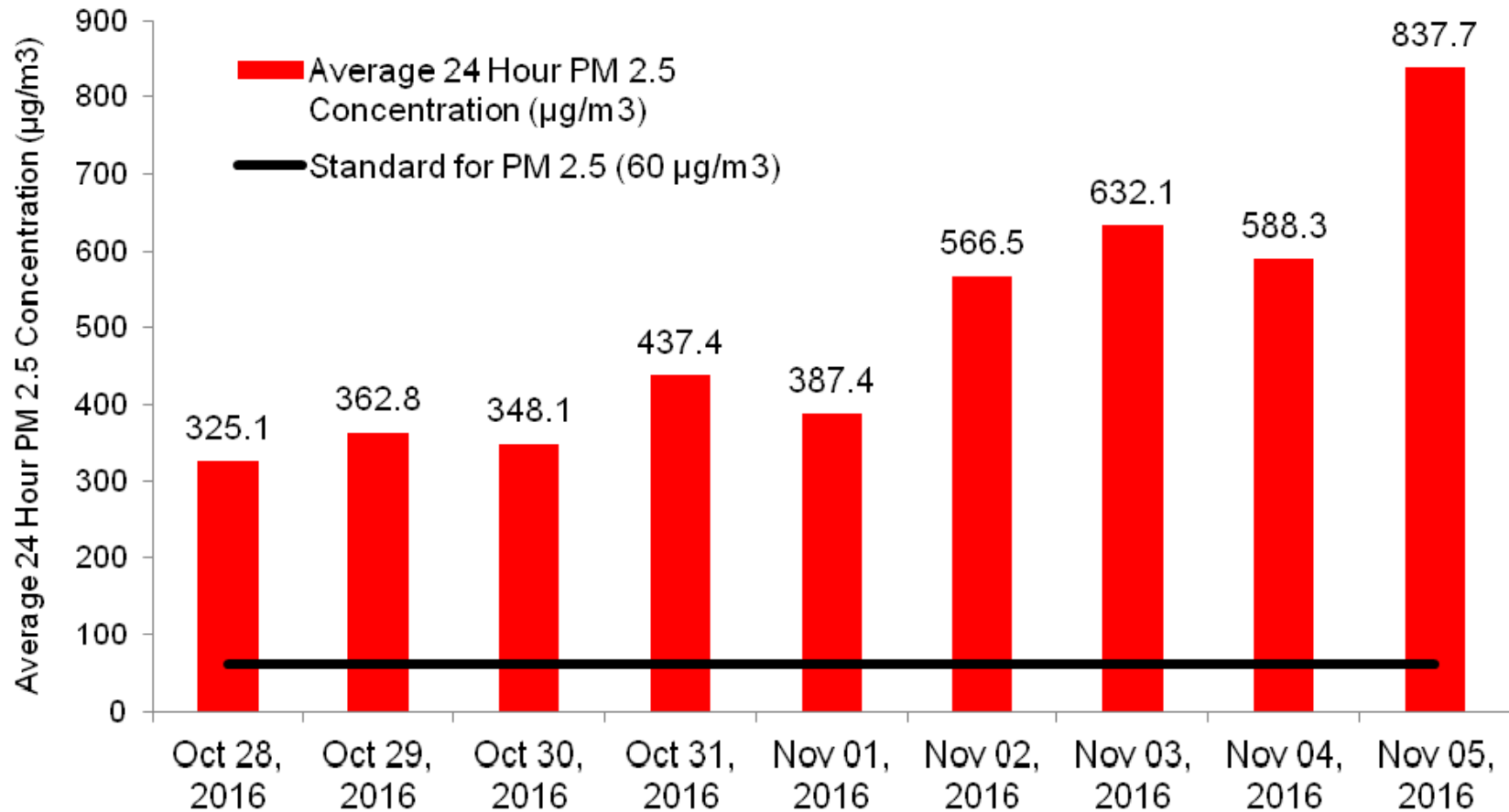
Sputum cytology of a 14-year old girl, showing abundance of particle laden AM

Study co-related lung damage high pollution levels in Delhi: global evidence even clearer



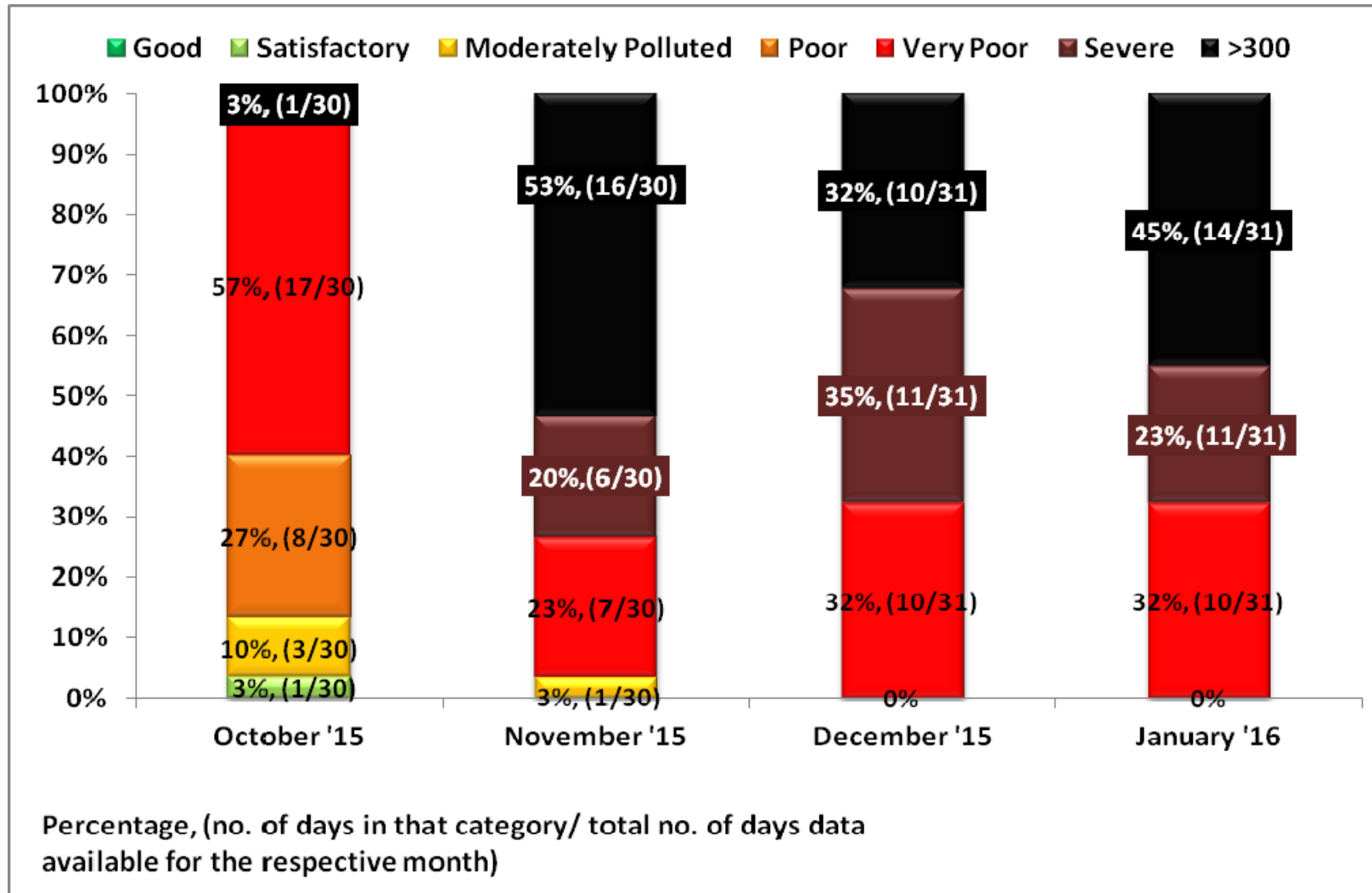
Delhi's Air Quality Challenge....

Winter 2016: Public health emergency



Source: Based on CPCB data

Percentage share of days in different AQI categories (PM_{2.5} from October 2015 to January 2016)



Source: Based on CPCB data

Graded Response Action Plan

- **November 10, 2016:** SC directed CPCB/EPCA to frame smog alert system
- **January 12, 2017:** MoEF&CC notified the Graded Response Action Plan for NCR
- Plan has 4 categories of pollution/action that needs to be taken
- Through the year Delhi and NCR are in the moderate to poor category
- From October 15 to March 15, Delhi and NCR move to Very Poor and Severe category
- **Objective is to ensure that severe+ does not arise**



**Actions under GRAP
and responsible
agencies**

Moderate to poor	Agencies		
Poor – When PM _{2.5} levels are between 91-120 µg/m ³ or			
PM ₁₀ levels are between 251-350 µg/m ³			
Moderate – When PM _{2.5} is between 61-90 µg/m ³ or			
PM ₁₀ is between 101-250 µg/m ³			
Stringently enforce/stop garbage burning in landfills and other places and impose heavy fines on person responsible	Municipal Commissioner		
	Municipal corporations of Delhi and NCR towns		
Close/stringently enforce all pollution control regulations in brick kilns and industries	Chairpersons, Delhi Pollution Control Committee, State Pollution Control Boards of Haryana, Rajasthan, and Uttar Pradesh		
Stringently enforce pollution control in thermal power plants through PCB monitoring	Plant in-charge of power plants in NCR, and Delhi Pollution Control Committee and State Pollution Control Boards of Haryana, Rajasthan and Uttar Pradesh		
Do periodic mechanized sweeping on roads with heavy traffic and water sprinkling also on unpaved roads every two days	Municipal Commissioner, Municipal Corporations of NCT of Delhi and NCR towns		
	Commissioners, Traffic Police of Delhi and NCR towns to identify roads with heavy traffic and provide information to respective Municipal Commissioners		
	Chief Engineers of officers in charge of CPWD, PWD of Delhi and NCR towns to identify unpaved roads with heavy traffic and provide information to respective Municipal Commissioners		

Moderate to poor	Agencies
Strict vigilance and no tolerance for visible emissions – stop plying of visibly polluting vehicles by impounding or heavy fine.	Commissioner or Officer in Charge, Transport Department and Traffic Police of NCT Delhi and NCR towns
Strict vigilance and enforcement of PUC norms	
Stringently enforce rules for dust control in construction activities and close non-compliant sites	Commissioner or Officers in charge of Police Departments of Delhi and NCR towns
Deploy traffic police for smooth traffic flow at identified vulnerable areas	Commissioners Traffic Police of Delhi and NCR Towns
Strictly enforce Supreme Court order on diversion of non-destined truck traffic and ensure only trucks registered after 2005 are allowed entry into Delhi	Municipal Corporations of NCT of Delhi and NCR towns
	Traffic Police of NCT of Delhi and NCR towns
Strictly enforce Supreme Court ban on firecrackers	Chief Controller of Explosives
	Petroleum and Explosive Safety Organizations (PESO)
	Commissioner of Officer in charge of licensing in the police departments of Delhi and NCR
Ensure fly ash ponds* are watered every alternate day during summer months (March – May).	Plant in charge of Power Plants in Delhi and NCR towns
Information dissemination Social media, mobile Apps should be used to inform people about the pollution levels, contact details of control room, enable them to report polluting activities/sources to the concerned authorities, and actions that will be taken by government based on the level of pollution.	Chairpersons, Delhi Pollution Control Committee, State Pollution Control Boards of Haryana, Rajasthan, and Uttar Pradesh

Very Poor	
When PM_{2.5} levels are between 121-250 µg/m³ or	
PM₁₀ levels are between 351-430 µg/m³	
Stop use of diesel generator sets	Chairpersons Delhi Pollution Control Committee, State Pollution Control Boards of Haryana, Rajasthan, Uttar Pradesh
Enhance parking fee by 3-4 times	Municipal Commissioner
	Municipal Corporations of NCT of Delhi and NCR towns
Increase bus and metro services by augmenting contract buses and increasing frequency of service	Principal Secretary, Department of Transport of NCT of Delhi
	Delhi Transport Corporation (DTC)
	Delhi Integrated Multi-modal Transit System Ltd (DIMTS)
	Delhi Metro Rail Corporation (DMRC)
	State Transport Corporations in NCR towns
Stop use of coal/firewood in hotels and open eateries	Municipal Corporations of NCT of Delhi and NCR towns
Residential Welfare Associations and individual house owners to provide electric heaters during winter to security staff to avoid open burning by them	Resident Welfare Associations
Alert in newspapers/TV/radio to advise people with respiratory and cardiac patients to avoid polluted areas and restrict outdoor movement.	Chairpersons, Delhi Pollution Control Committee, State Pollution Control Boards of Haryana, Rajasthan, and Uttar Pradesh

Severe	Agency responsible/Implementing Agency
When PM _{2.5} levels are above 250 µg/m ³ or	
PM ₁₀ levels are above 430 µg/m ³	
Close brick kilns, Hot Mix plants, Stone Crushers	Chairpersons Delhi Pollution Control Committee, State Pollution Control Boards of Haryana, Rajasthan, and Uttar Pradesh Superintendent of Police and Deputy Commissioner of respective districts
Shut down Badarpur power plant and maximize generation of power from existing natural gas based plants to reduce operation of coal based power plants in the NCR.	Chairpersons Delhi Pollution Control Committee, State Pollution Control Boards of Haryana, Rajasthan, and Uttar Pradesh
Intensify public transport services. Introduce differential rates to encourage off-peak travel.	Secretary cum Commissioner of Transport Department, NCT of Delhi, and Transport Commissioners of NCR towns Chairperson, Delhi Metro Rail Corporation (DMRC) Chairpersons, State Transport Corporations
Increase frequency of mechanized cleaning of road and sprinkling of water on roads. Identify road stretches with high dust generation.	All road owning agencies including Municipal Corporations of NCT of Delhi and NCR towns, Public Works Departments and National Highway Authority of India

Severe + or Emergency	Agency responsible/Implementing Agency
When PM _{2.5} levels cross 300 µg/m ³ or PM ₁₀ levels cross 500 µg/m ³ (5 times above the standard) and persist for 48 hours or more	
Stop entry of truck traffic into Delhi (except essential commodities)	Municipal Corporations and Traffic Police of Delhi and NCR Towns
Stop construction activities	Delhi Pollution Control Committee/Municipal Corporations of Delhi and NCR towns
Introduce odd and even scheme for private vehicles based on license plate numbers and minimize exemptions	Secretary cum Commissioner of Transport Department, NCT of Delhi, and Transport Commissioners of NCR towns
Task Force to take decision on any additional steps including shutting of schools	

Challenge is implementation

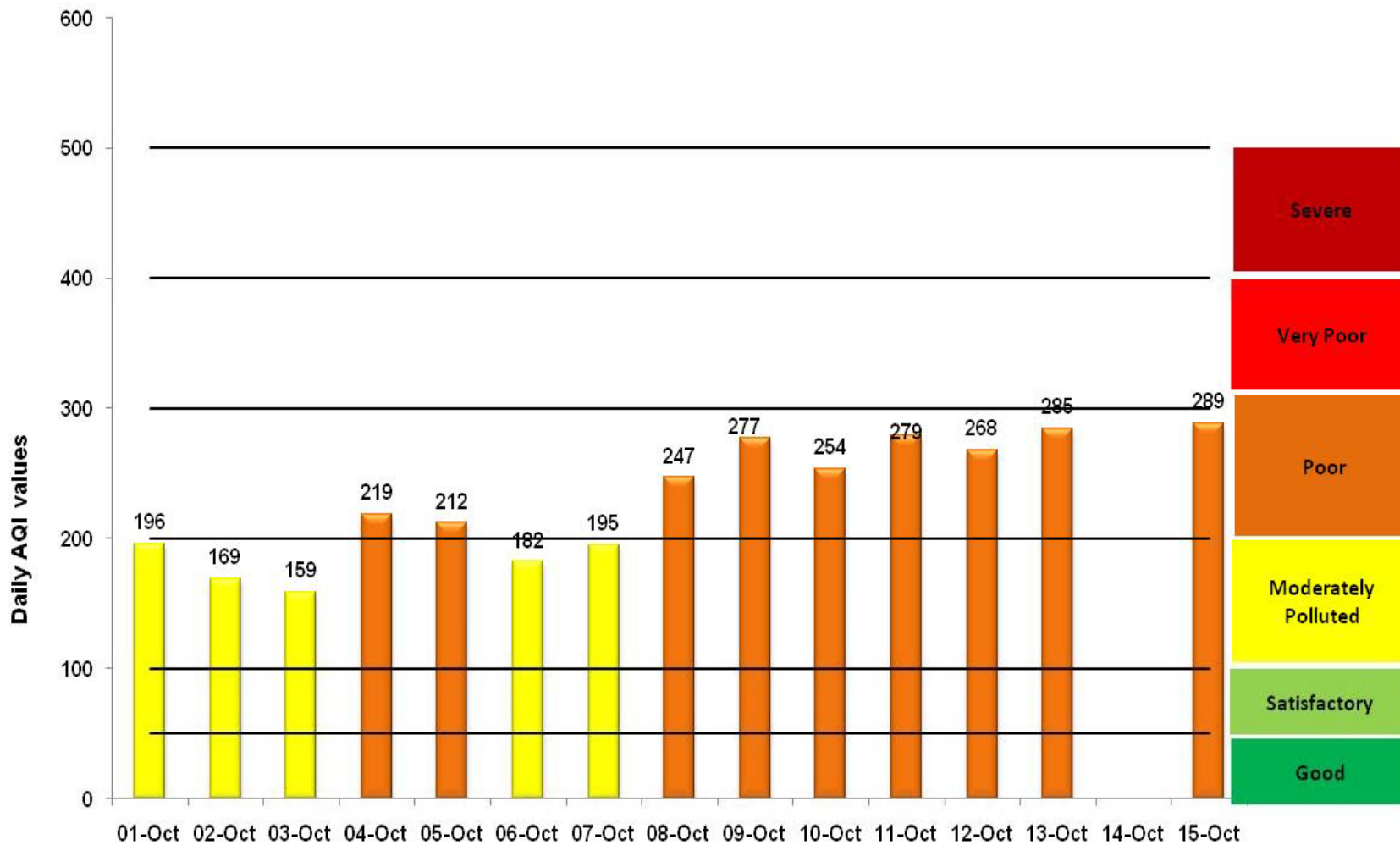
What has been done?

- **Agenda 1: Set up air monitoring stations across NCR**
- Till now, there were stations in Delhi, but these were not linked.
- Also there were practically no air monitoring stations in NCR
- Over the last year stations have been added. Now the numbers stand at:
 - **DPC: 19**
 - **CPCB: 5**
 - **MoES: 8**
- **Total 32 stations online or will be online in next few weeks**
- **Network is so dense that we can take local actions to solve regional problem**

Monitoring stations: NCR

- **Getting installed**
- **Haryana: 3 stations functioning – Gurgaon, Faridabad, Rohtak**
- **13 stations still to come up. Will happen by December end**
- **UP: 2 stations functioning – Noida and Ghaziabad**
- **10 more to come up: Will happen by November end**
- **Rajasthan: 2 stations – Alwar, Bharatpur: done**
- **In the meantime all existing stations data used to generate AQI
– Air Quality Index**

Trend of AQI from October 1- 15, 2017



Source: Analysis of CPCB AQI data

Daily alert: Information for action

- 1. AQI: what is the situation last day (CPCB)
- 2. Forecasting report: what is the wind speed and direction (MOES)
- 3. What are the problem areas, based on weekly inspection (CPCB) – report sent to all pollution control boards for action and to monitor with local agencies.

Daily Air Quality Index Report:

<https://app.cpcbcr.com/AQI/>

Building awareness about GRAP and need for action

- EPCA conducted five meetings on different issues like solid waste burning, industrial pollution, power plants, brick kilns.
- In NCR, the state governments of Haryana and Uttar Pradesh conducted two meetings each headed by Chairman EPCA.
- Delhi government is doing monthly meetings chaired by Hon'ble LG to take stock of actions

Moderate to Poor: Very Poor to Severe

Key actions taken

1. Closure of Badarpur Power Plant: October 17 2017 to March 15 2018. Permanent closure in July 2018
2. Improvements in PUC: Link to insurance; audit of all stations and list of necessary improvement given states
3. Enforcement of pollution control in thermal power and other industries (close monitoring by PCBs)
4. Closure of brick Kilns, which have not converted to zig zag technology, which brings pollution down by 80 per cent
5. Monitoring of trucks that are not destined for Delhi and building turn-back facilities for them

Moderate to Poor: Very Poor to Severe
Key directions issued; need local monitoring

1. Stringent enforcement of **dust control** in construction sites
2. Control on **road dust**, through mechanical sweeping and more importantly repair of roads and greening of area
3. Enforcement of **garbage burning** -- at garbage dumps and locally

Key actions to be taken, **which are difficult to implement**. But will have to be done if pollution increases

1. Ensure all residential welfare associations and individual house owners provide heaters to security staff to avoid burning
2. Stop use of coal/firewood in hotels and open eateries (outside Delhi)
3. **Increase bus and metro services by augmenting contract buses and increasing frequency (very poor)**
4. **Intensify public transport services, introduce differential rates to encourage off-peak travel**
5. Stop use of diesel generator sets (outside Delhi – as power is not available)
6. **Enhance parking fee by 3-4 times (parking policies do not exist)**
7. Closing all hot mix plants, stone crushers (severe category)

Public health emergency: Severe+

- **Effort is that we do not reach this level.**
- **But if all other measures fail and weather turns adverse then the following will have to be done:**
 1. Stop entry of trucks in to Delhi (except for essential commodities)
 2. Stop all construction activities
 3. Introduce odd-even scheme with minimal exceptions

Long-term measures needed to improve air quality

Control on pollution from vehicles

Agenda

1. Improve fuel and emission standards: move to BS IV now and BS VI by 2020: done
2. Improve PUC system so that vehicles on road meet tighter norms: SC has directed action based on EPCA report. To monitor compliance

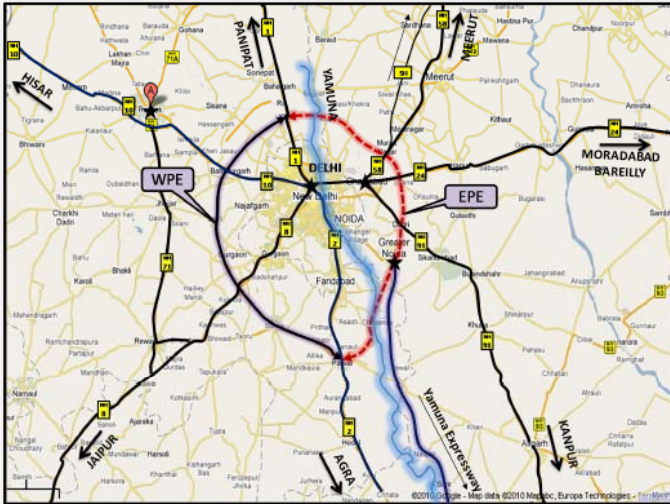
Control on no of trucks entering Delhi:

1. Enforcement of ECC – survey ongoing to check on this
2. Enforcement of non-destined vehicles – ongoing; needs strengthening through RFID
3. Building by-pass so that vehicles do not have to come via Delhi

Western and Eastern Peripheral Expressways (WPE-EPE)

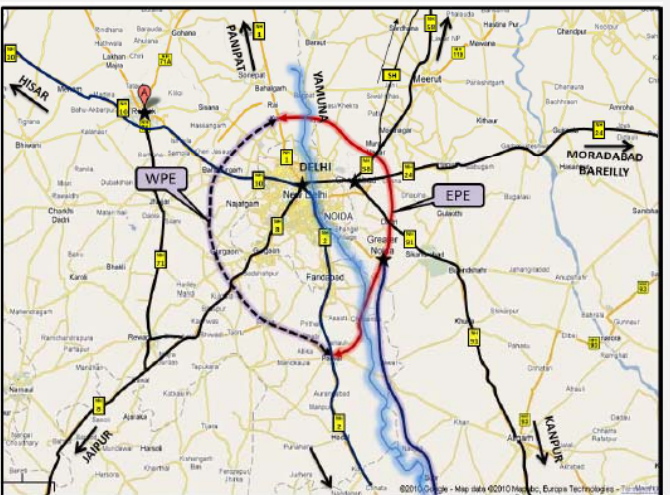
KUNDLI – MANESAR STRETCH (WESTERN PERIPHERAL EXPRESSWAY)

STATUS REPORT FOR EPCA



EASTERN PERIPHERAL EXPRESSWAY

STATUS REPORT FOR EPCA



- Manesar-Palwal stretch of Western Peripheral Expressway (WPE) has been completed in April 2016

- Kundli-Manesar stretch of WPE has achieved ~35% completion as of August 2017, and is expected to be completed by October-December 2018

- Construction of Eastern Peripheral Expressway is underway and all 6 sections are likely to be completed by July-December 2018, overshooting the March 2018 deadline

SDMC is carrying out traffic count survey and OD survey at 20 entry points into Delhi...

ROUND-1	
S. No.	Location
1	Dhansa Border
2	Aya Nagar
3	Kapashera
4	Jharoda
5	Kundli
6	Mandoli-Main
7	Prahladpur
8	Tikri
9	Badarpur-Faridabad -Main
10	Badarpur - Faridabad

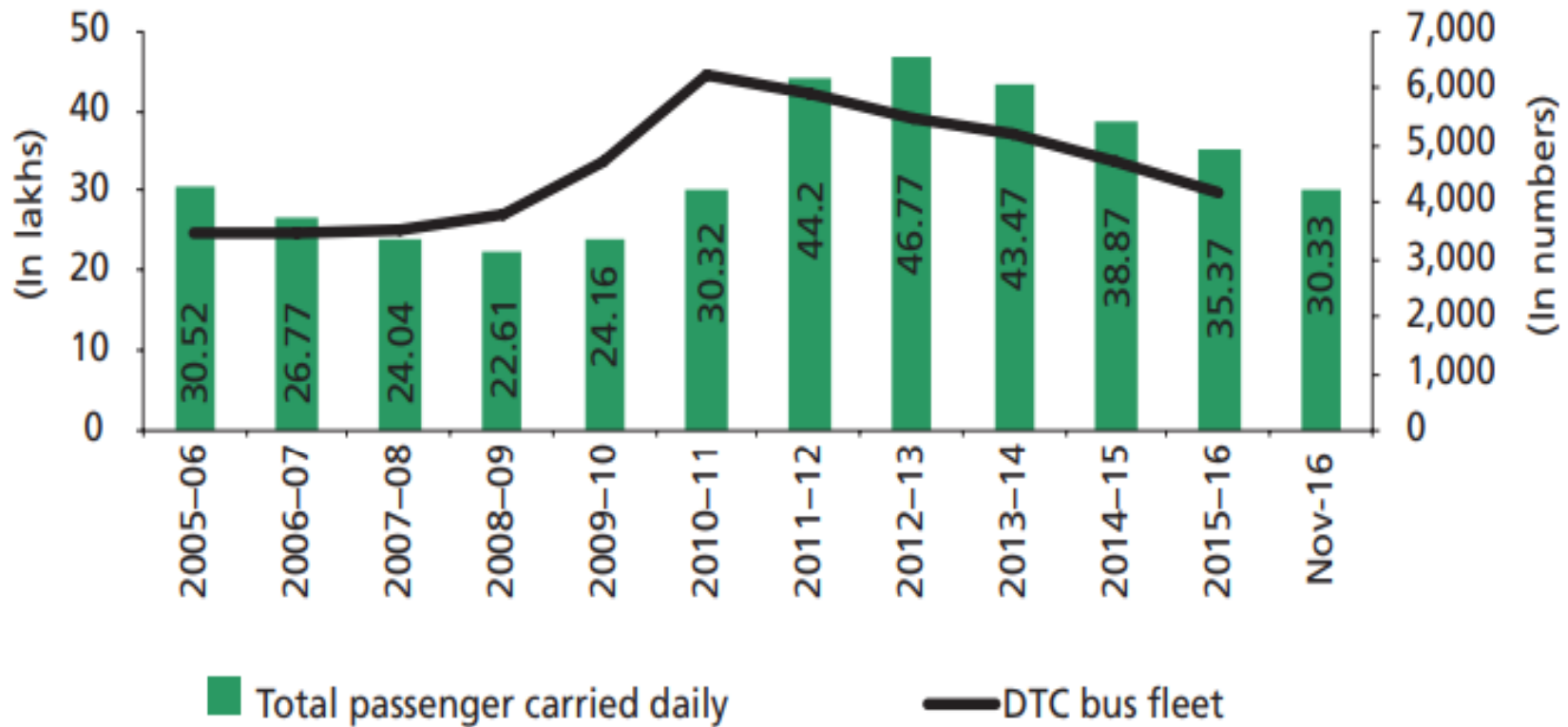
ROUND-2	
S. No.	Location
1	Mohan Nagar
2	New Kundli
3	Noida Mjor
4	DND
5	Gazipur (old)
6	Gazipur-main
7	Kalindi Kunj
8	Shahdara-Main
9	Shahdara Flyover
10	Rajokari

Vehicle pollution control

Public transport needed desperately

- Even as we clean vehicles, pollution will keep increasing with higher numbers of vehicles on road
- Delhi has 21% land area under roads; 95% occupied by private vehicles; only 20 per cent drive or less.
- Public transport and last mile connectivity critical for pollution
- No right to clean air without right to walk
- **NO PROGRESS IN THIS AGENDA – Delhi or NCR**

Declining bus fleets and ridership in Delhi

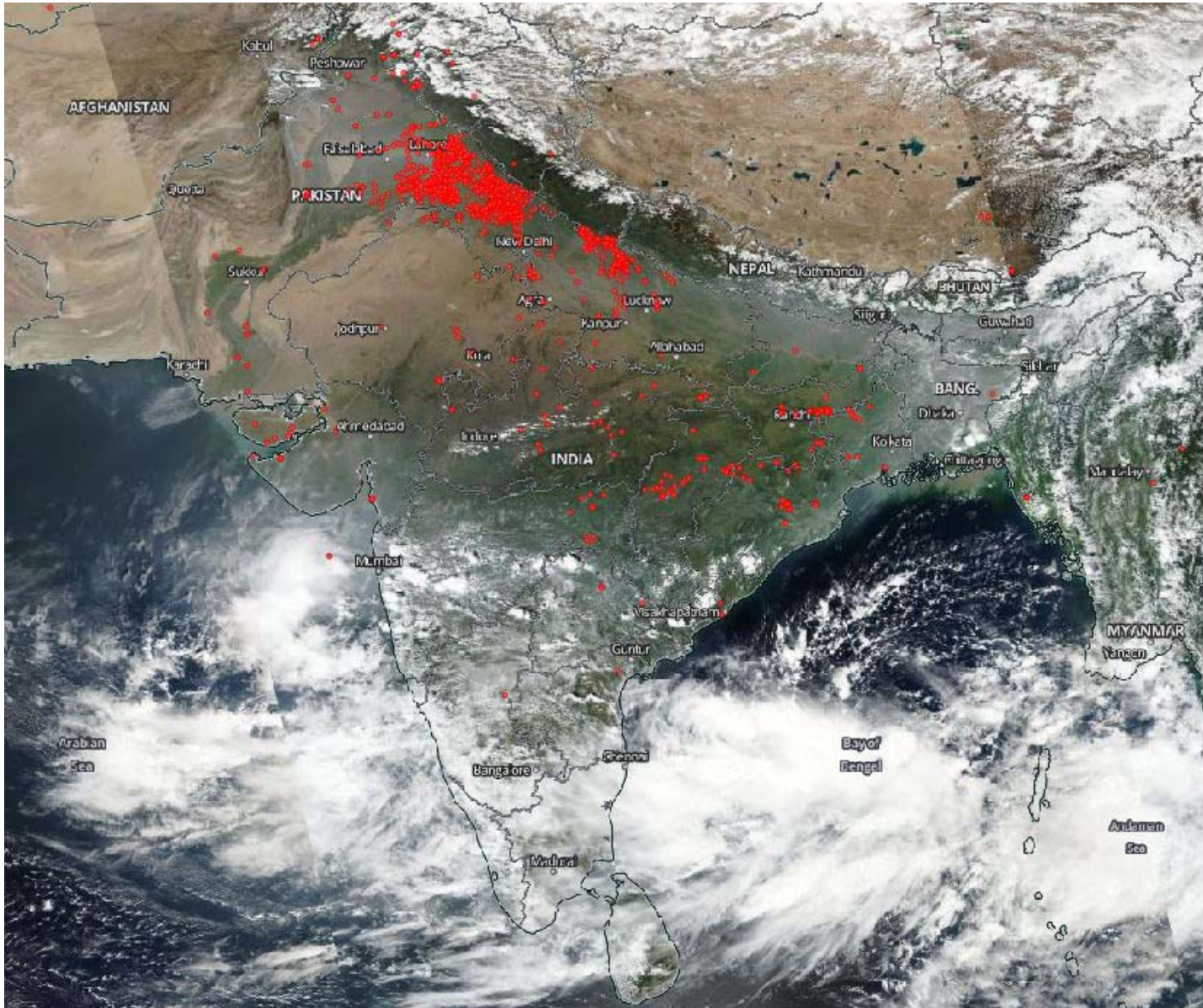


Source: DTC Operational Statistics, November 2016

Garbage burning: Big solutions. But immediately following done

- Stepped up vigilance and action against the garbage burning, particularly during the GRAP enforcement period, beginning October 15 to March 15, when very poor and severe category will be in force.
- State zonal teams would report the action taken once a week whereas the nodal team would report every fortnight to Chief secretary task force and EPCA.
- Citizens warned of penal actions against garbage burning through public advertisements
- Contingency plans to contain burning of landfill sites – to douse fires as fast as possible

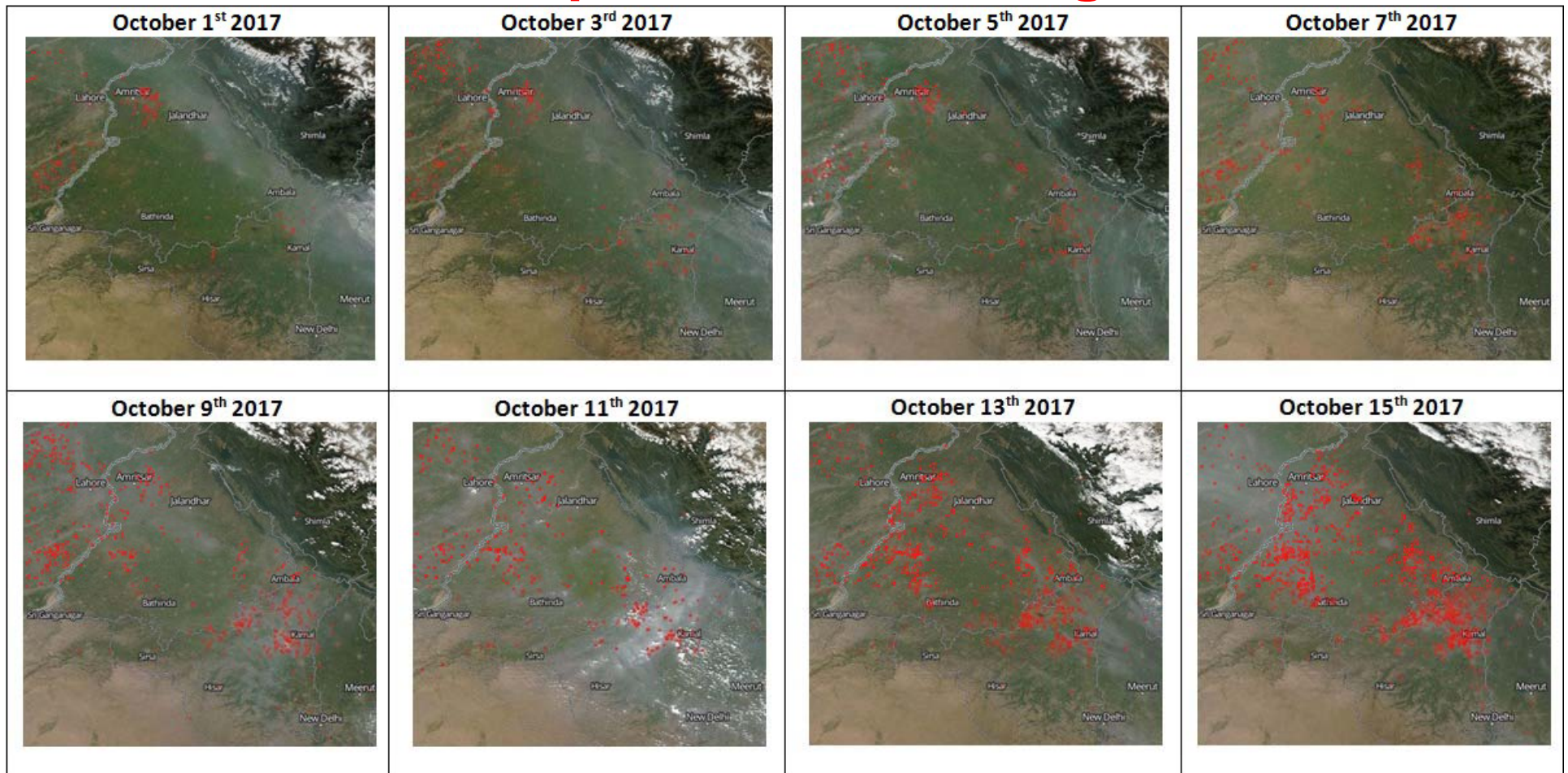
Crop Residue Burning



Satellite image of the Indian subcontinent on October 15, 2017 (red dot indicate biomass burning).

Source: NASA MODIS and VIIRS Satellite Imagery

Crop Residue Burning



- In Punjab, fires are concentrated in and around **Amritsar, Bhatinda, Ferozpur, Faridkot, Muktsar, Patiala and Fategarh Sahib** districts
- In Haryana they are concentrated around **Ambala, Kaithal, Kurukshetra and Karnal** districts
- Fires have intensified since the 7th of October. It was also noted that over the 15 day observation period so far, **fires intensify on weekends**, i.e. 7-9 October and 13-15 October

Crop burning: Farmers need support; technology needed for use of residue quickly: Actions taken

- Directions to Punjab, Haryana and Uttar Pradesh to ensure strict monitoring of the situation during both Kharif and Rabi crop harvesting through district level special teams
- To use remote sensing technology to control fires
- All three states to provide subsidy on equipment which helps in effectively controlling stubble burning
- **This will take time to sort. Need to find big answers as farmers need support**

**Polluting fuels:
ban on import of pet coke, standards for Nox and
Sox for industry**

- EPCA had fuels used in NCR tested
- Found:
- **75,000 ppm** of sulphur in pet coke (domestic and imported)
- **25,000 ppm** of sulphur in FO
- Have asked for controls on these fuels
- **But standards still not notified**
- **No ban on import of pet coke**
- **Big agenda for pollution in NCR**

Contact of Member Secretaries of Delhi NCR

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EPCA Website

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