

Toxic trucks: Need urgent action before winter



Strategies to reduce air pollution from trucks entering and leaving Delhi

Centre for Science and Environment

New Delhi

October 6, 2015



Pollution from trucks: concern, directions but action weak



- **December 6, 2001 SC order:**
 - Banned entry of non-destined trucks from January 15, 2002.
- **SC Orders of 11.2.2005, 11.3.2005 and 1.8.2005:**
 - No corridor joining different highways should pass through Delhi.
 - Directed construction of Western Peripheral Road or Kundli-Manesar-Palwal Expressway and Eastern Peripheral Expressway to bypass non-destined trucks



Delay has cost the city dear: High pollution and health impacts



The WPE will be completed not before July 2018.

Delay in commissioning work on the longer segment between Kundli-Mansesar (83 km out of 135 km).

The EPE will be completed by July 2018 at the earliest -- NHAI.

- The ban on non-destined vehicle entry to Delhi difficult to enforce.
- Lack of turn-around facilities and difficulties in identifying definition of vehicles.





Why this assessment?

To understand the real numbers and find short term measures

CSE commissioned M/s V R Techniche Consultants Pvt Ltd to survey the commercial vehicles entering and leaving Delhi.

Traffic count survey conducted by using 24X7 video recording method at fixed spots near selected entry points between June 29 and July 18, 2015. Survey conducted in 9 key entry points. According to MCD this account for close to 75% of total commercial vehicle entry into Delhi.

Survey for 24 hours, from 8 am to 8 am and count vehicles in both directions.



Survey points

- **Selected Entry Points :**

1. Kundli border on NH1 (KGT Main)
2. Tikri border on NH10
3. Rajokari border on NH8
4. Badarpur border on NH2
5. KalindiKunj
6. GhazipurMainon NH24
7. Ghazipur Old
8. ShahdaraIstborder on NH-19
9. ShahdaraFlyover

- **Types of vehicles surveyed :**

- mini light goods vehicle
- light goods vehicle
- 2-axle trucks
- 3-axle trucks
- 4-axle trucks
- 5-axle trucks
- 6-axle trucks
- more than 6-axes

Map : Location of Traffic Count Survey





Finding 1: Massive numbers entering and leaving Delhi

Commercial vehicle (excluding taxi) entry daily

9 locations: **38,588** trucks daily

Extrapolated for 127 entry points: **52,146** trucks daily

Entry and exit of commercial vehicles

Only from 9 points: **85,799** trucks daily

Extrapolated for 127 entry points: **1,15,945** trucks daily



Gross under estimation of truck numbers by MCD



- From the same 9 locations
 - MCD – 22,628
 - CSE – 38,588
 - More than 70% difference



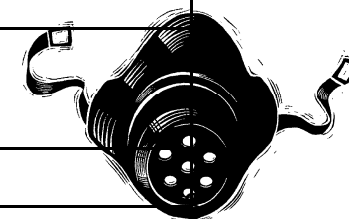
Gross underestimation across entry points



Comparison between CSE & MCD data in daily average trucks (Category-2 to Category -5) entering Delhi from selected 9 entry points

Source: CSE Traffic Count Survey & MCD Data for toll entry between 16.05.2015 to 31.07.2015

Location	Entry Point(s)	Comparison between CSE & MCD Data (Daily Average) from 16.05.2015-31.07.2015		
		CSE	MCD	Difference (%)
Kundli Border/NH-1	KGT Main	8369	4554	84
Tikri Border on NH-10	Tikri	3700	1890	96
Rajokari Border on NH-8	Rajokari	9919	6335	57
Badarpur	BFTL (Badarpur Toll)	4460	3001	49
KalindiKunj	KalindiKunj	4271	2275	88
Ghazipur	a)Ghazipur Main	3914	2372	65
	b)OldGhazipur			
Shahdara	a)Shahdaralst	3955	2201	80
	b)Shahdara Flyover			
Total from 9 entry points		38,588	22,628	71
Total from all 127 Entry Points		52,146	30,373	72

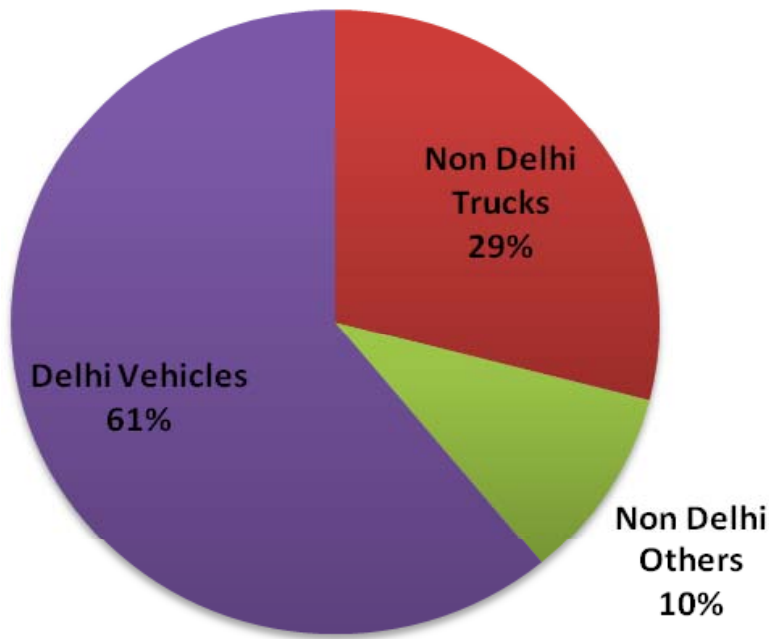


Massive loading of toxic pollution from trucks

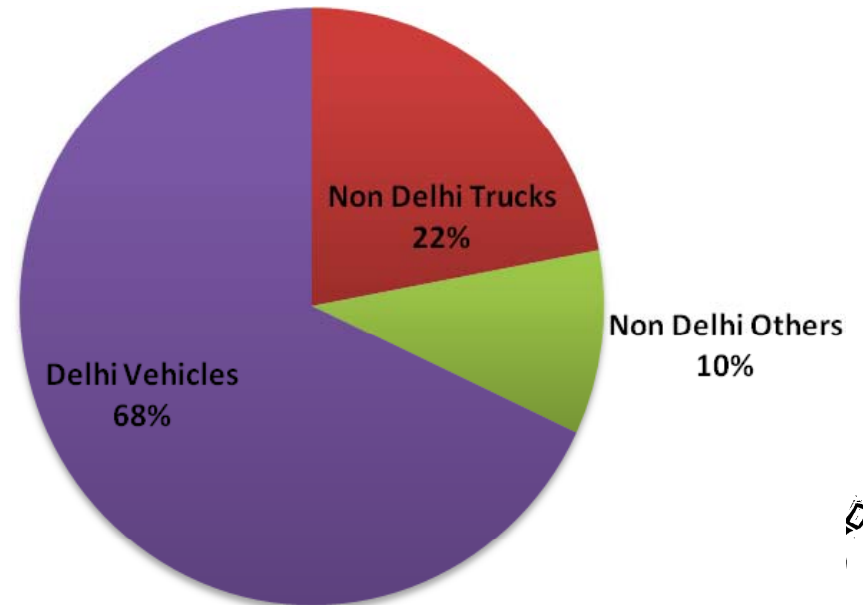


Light and Heavy duty trucks contribute 22-30 per cent of all vehicular pollution in Delhi

PM Load



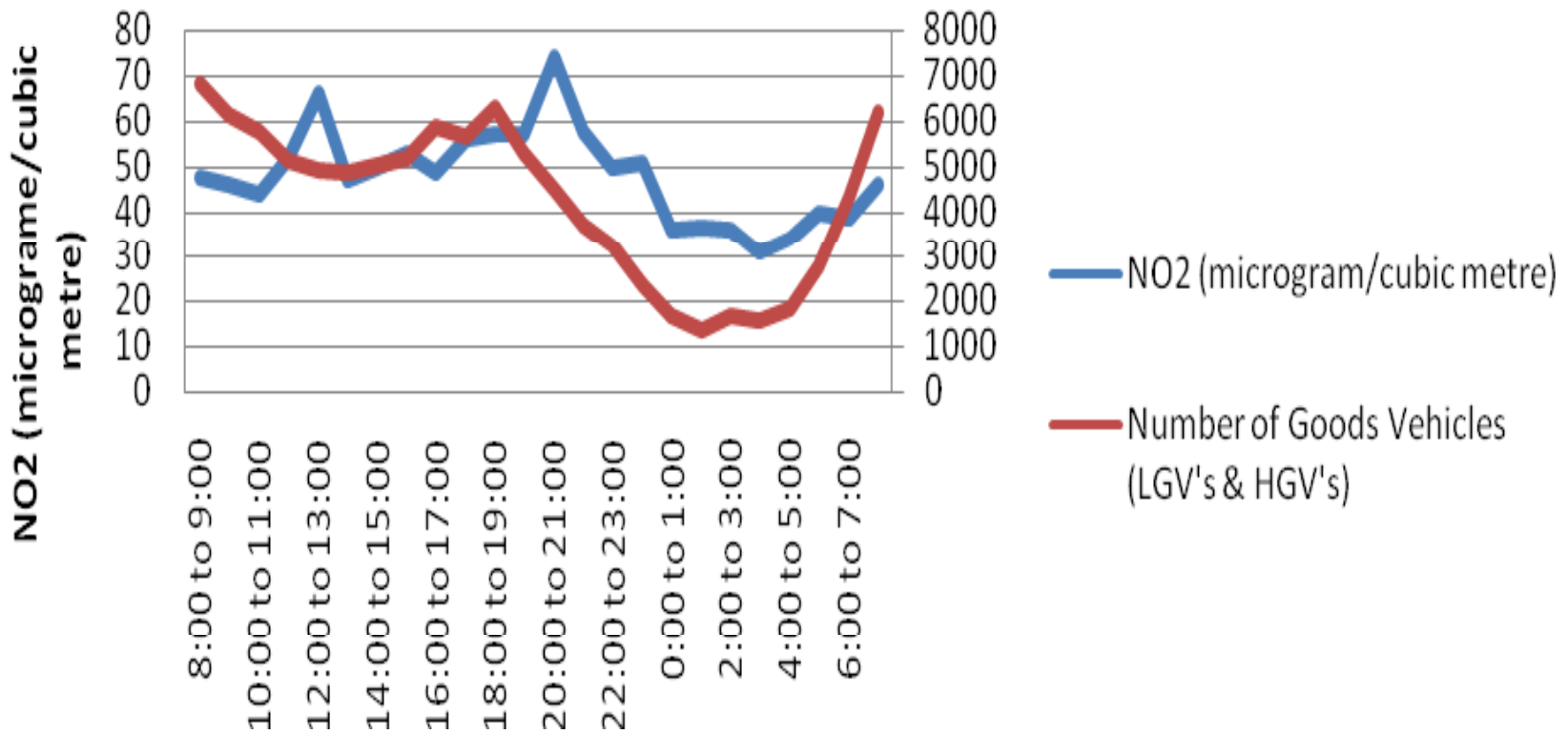
NO2 Load



Source : CSE

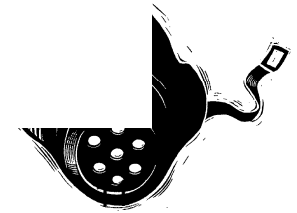
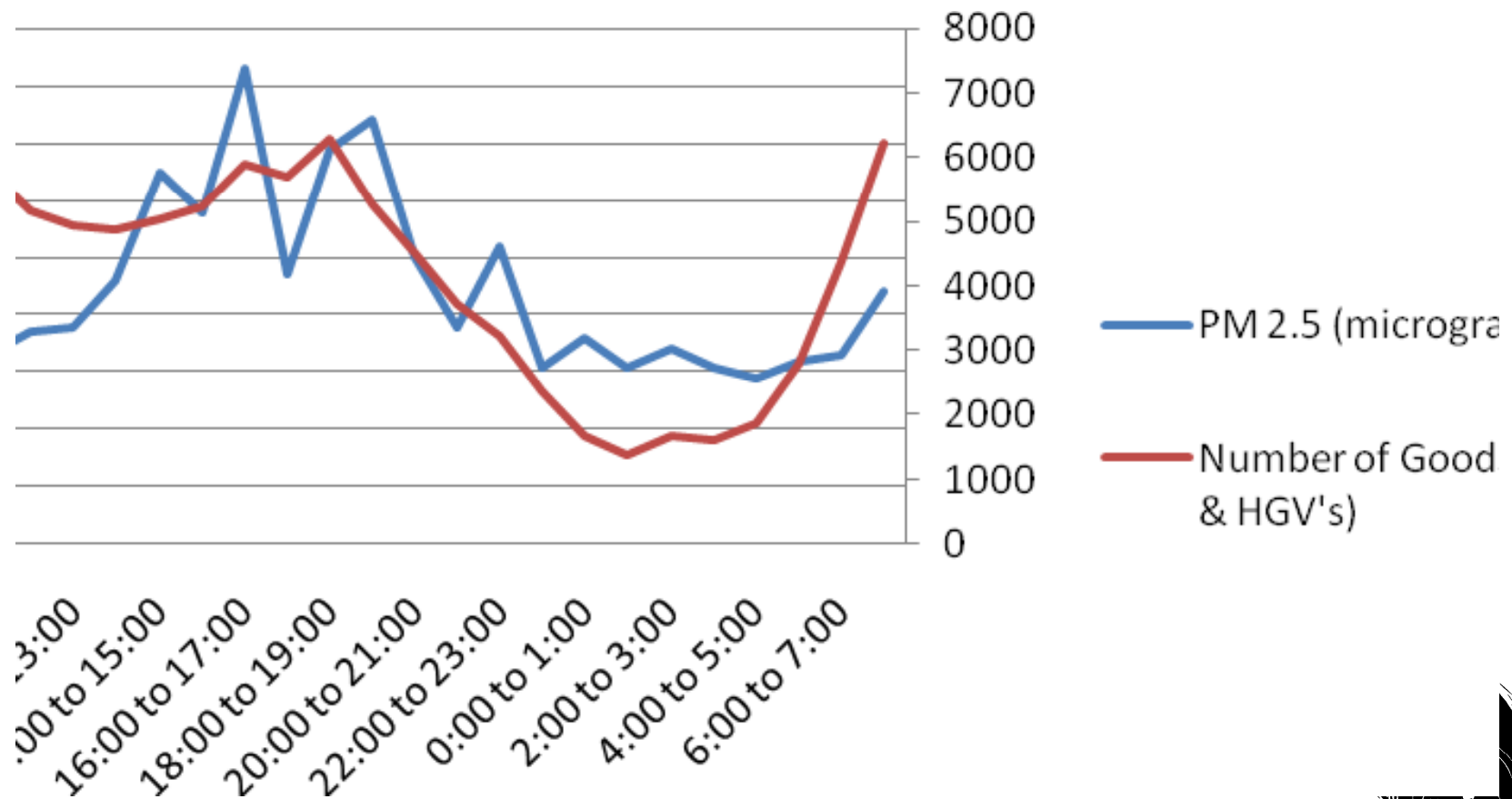


Trucks spike pollution in Delhi: night time gets no relief



Source : CSE

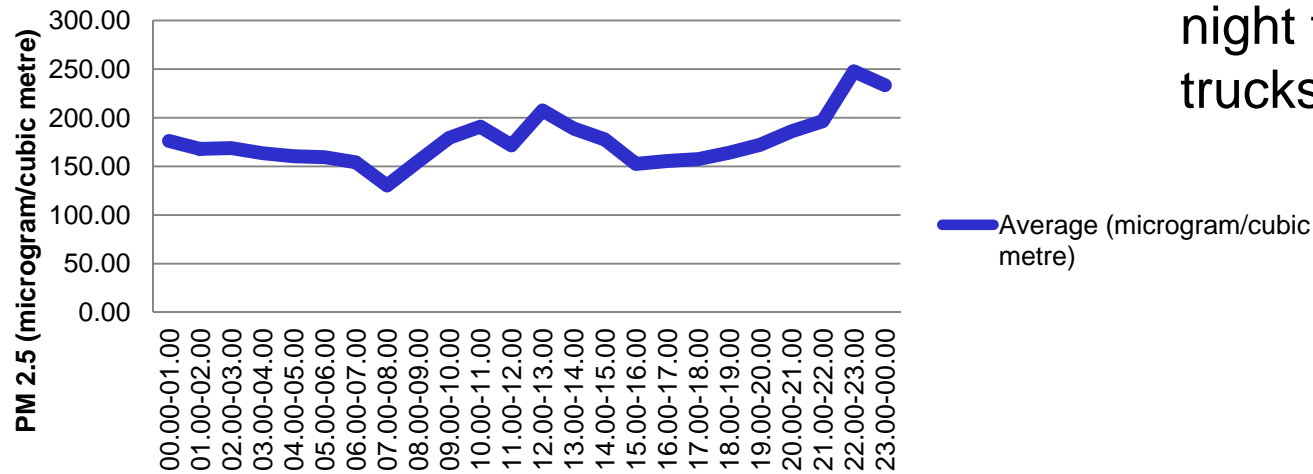
Particulate loading continues at night



Winter shows sharper increase in night time pollution

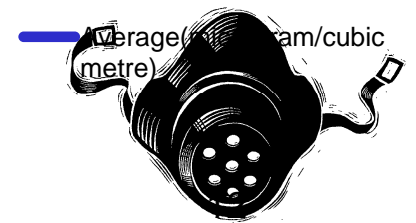
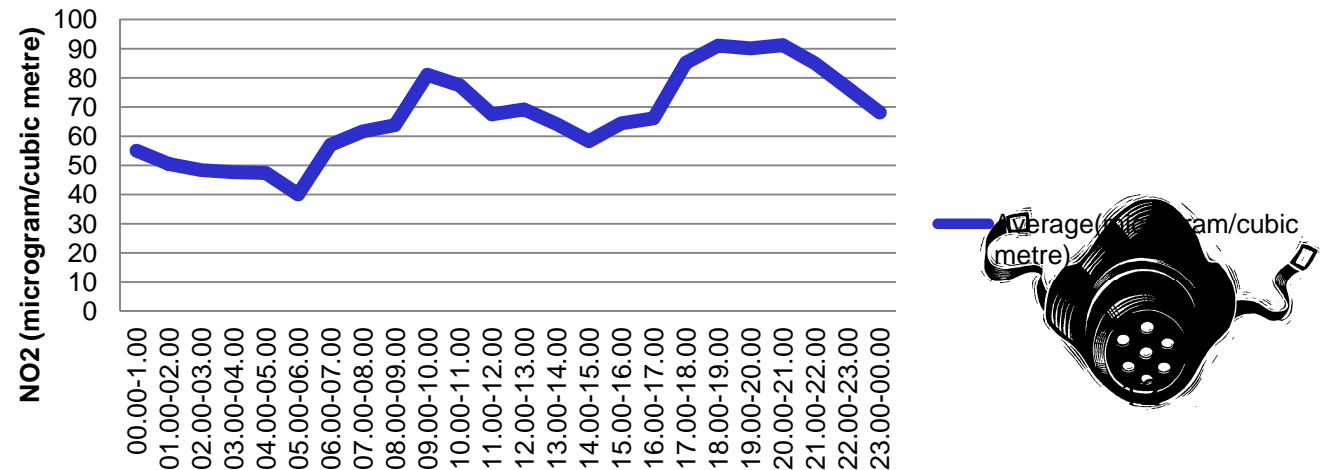


Average (microgram/cubic metre)



Winter inversion worsens night time pollution from trucks

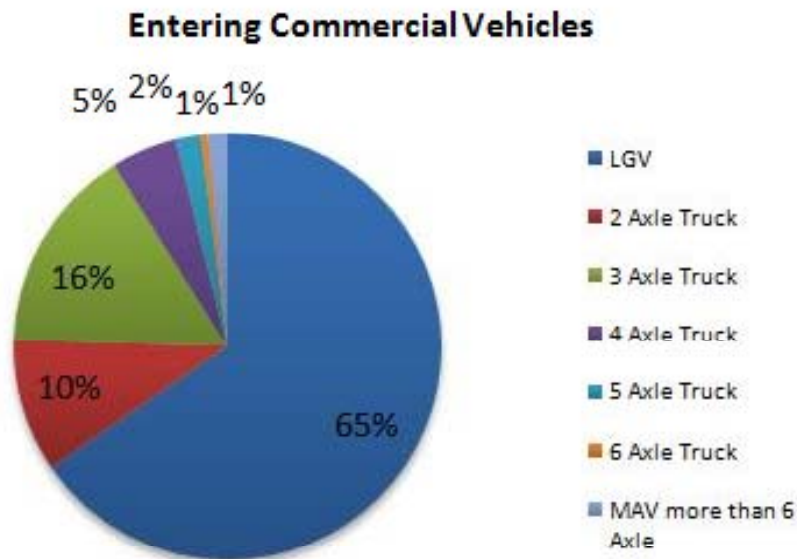
NO2 (microgram/cubic metre)



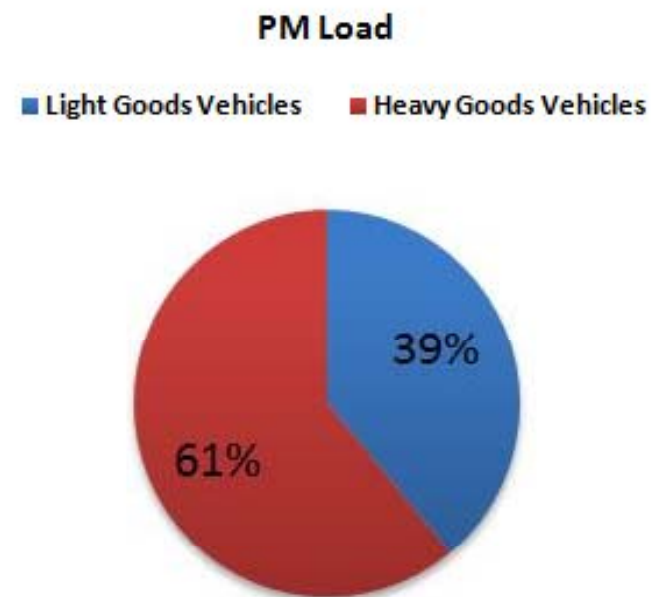
Truck: light duty vehicles also contribute 39 per cent load



Share of different truck segments entering Delhi



Particulate load from LGV's and HGV's



- Light good vehicles – 65% of total commercial vehicles entering Delhi

They contribute 39% of the particulate matter load from the commercial vehicles entering Delhi.

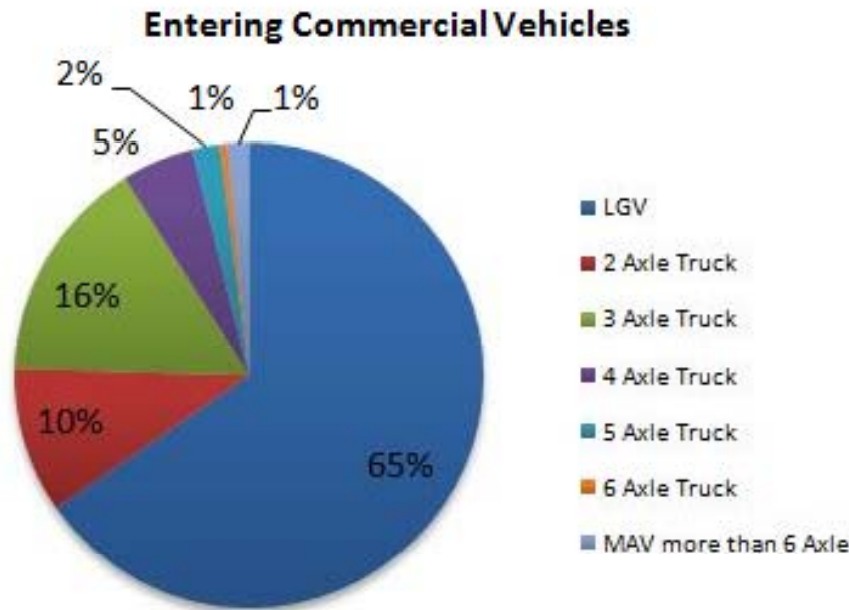


Source : CSE

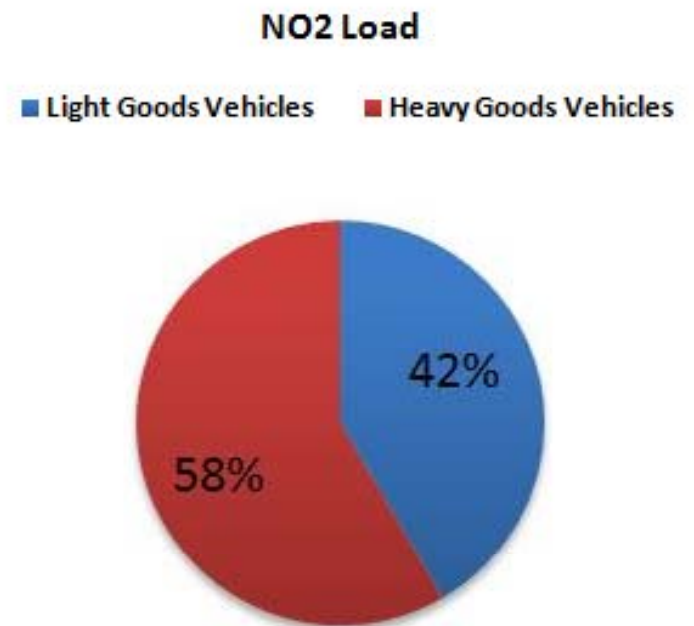


All trucks, light and duty load air with toxins

Share of different truck segments entering Delhi



Nitrogen oxide from LGV's and HGV's



- Light good vehicles – **65%** of total commercial vehicles entering Delhi
- They contribute **42%** of the nitrogen oxide load from the commercial vehicles entering Delhi.



Source : CSE

How many trucks are non-destined?



- **Data on non-destined commercial traffic is not reliable**
 - MCD data shows non-destined trucks – those to be turned back to comply with the Supreme Court order at a mere 0.3% of the total traffic.
 - MCD found only 90 vehicles not destined for Delhi and the rest -- 29,000 had business to do in the city.
 - **Conducting a travel destination study has huge drawback, as drivers do not provide accurate or correct information.**



CSE's rapid and limited count found much more non-destined trucks



- A rapid diagnostic survey only on the roads approaching NH 1 and NH 10 entry to Delhi.
- Truck drivers were randomly surveyed about their origin and destination, about trip and commodity carried.
- This found that some 23% of all commercial vehicles travelling on NH 1 were not destined for Delhi.
- Over 40-60% of heavy trucks (3-axle and above) were not destined for Delhi.
- **A challenge to distinguish between destined and non-destined vehicles.**



- Harish Salve Amicus Cureai in the on going air pollution case in the Supeme Court files an application based on this study and EPCA report
- Seeks short term measures
- Delhi government struggling with the issue
- Delhi government budget proposal to levy a congestion fee on diesel commercial vehicles – A range from Rs 100 to Rs 1500 pe vehicle.
- Not implemented



Equalise cost of moving through Delhi with alternative routes



- Pollution compensatory charge based pollute pay to equalise the toll cost to remove distortion

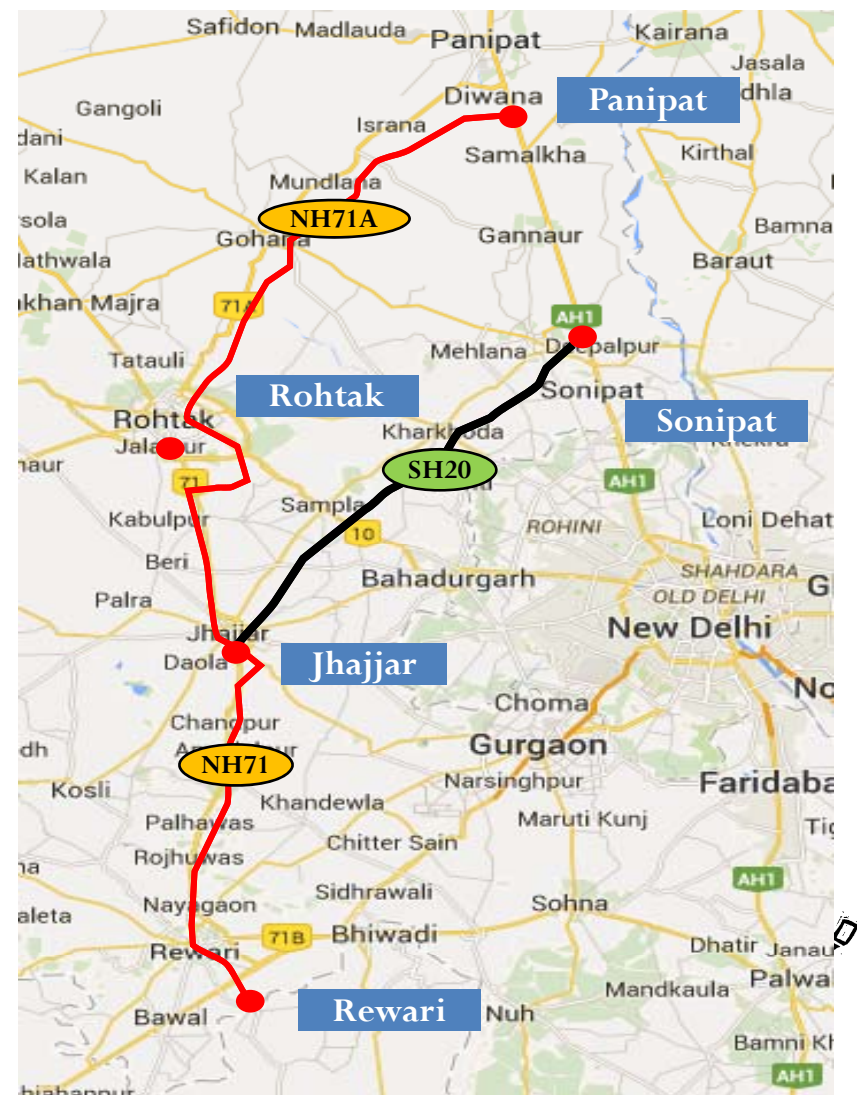
- Example:

- NH 71 and NH 71A are toll roads connecting Rewari with Jhajjar and Rohtak to Panipat.

- The toll rate for the 3-axle trucks to travel on this road is Rs 1420.

- But MCD toll in Delhi for a 3-axle truck would be Rs 450.

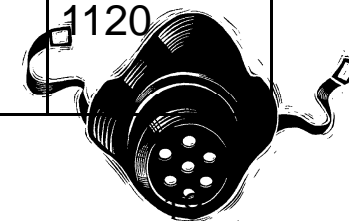
- Not much difference in trip length -- Travelling via NH71 and NH 71A is 172 km. But travelling through Delhi is marginally shorter at 163 km.



Distorted cost



Comparison of Toll Rates along various Alternatives						
Route (From Panipat to Rewari)		Length, in Km	Toll Rate for	Toll Rate for	Toll Rate for	Toll Rate for
			LGV	2-axle Trucks	3-axle Truck	4-axle and above
Alternative 1	NH71A - NH71 (Through Rohtak)	172	450	930	1420	1550
Alternative 2	Through Delhi	163	120	225	450	1120



Need RFID to tack vehicles



Implement Radio-Frequency Identification (RFID) on trucks: Enable electronic payment and tracking as they pass through the tollbooths.

This can be easily implemented in Delhi

The contract given by MCD to the private operator includes the provision to move towards RFID.

But no deadline has been given and there is clearly no incentive for the operator to move towards RFID, which would reduce the dealings in cash considerably.



RFID Enabled Toll Booth



Introduce Bharat Stage IV emissions standards nation-wide by April 2016



The current Bharat Stage III standards that apply to trucks across the country are 15 years behind Europe.

Trucks have at least 15-year life. Any delay in bringing in better technology or fuel, means more polluting on-road vehicles.

Introduce cleaner fuel nationwide as trucks travel long distances.

The current draft standards issued by the Ministry of Surface Transport and Highways requires inter-state (truck) traffic to move to Bharat Stage IV only in April 2017.

This delay is unacceptable.

