Response to the issues raised by the automobile companies related to dieselization of cars in their respective affidavits to the Hon'ble Supreme Court – General Motors, Tata Motor, Toyota-Kirloskar, Mercedes Benz

EPCA/CSE
January 2016
Notes for Amicus in the M C Mehta vs Union of India

1. Regarding health concerns over diesel emissions

1.1. Car industry claims health studies are based on old evidences on diesel. Modern diesel engines do not have cancer risk. They have cited a study by Health Effect Institute to claim that modern diesel engines do not have carcinogenicity problem

Response

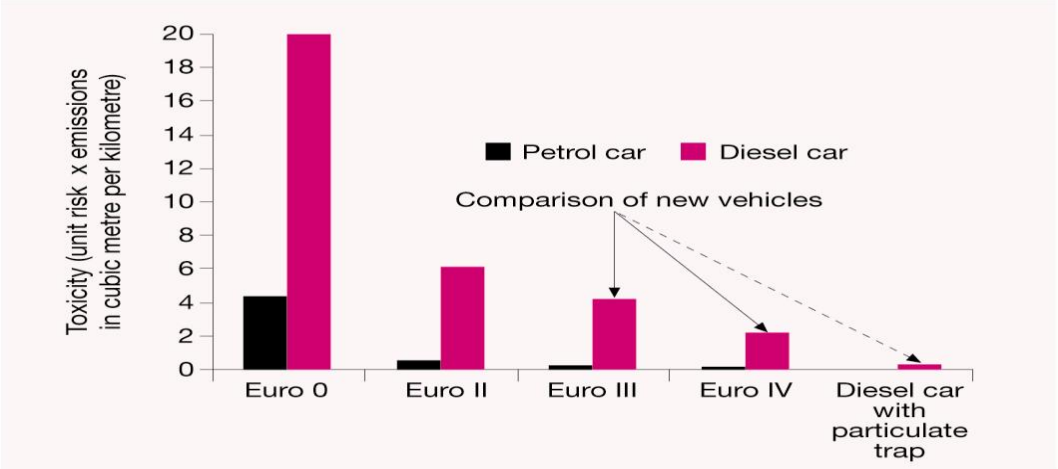
The World Health Organization (WHO) and International Agency for Research on Cancer (IARC) has classified diesel exhaust as Group 1 carcinogen for definite link with lung cancer **in June 2012** putting it in the same class as tobacco smoking, asbestos, and arsenic. IARC-WHO has stated in its release that the most clinching evidence has come among others, from one of the largest American studies in 2012 by the US National Cancer Institute.

A significant study by the same Health Effect Institute, Boston, published in Environmental Health Perspective recently, has found that particles from coal and diesel are more harmful than wind blown dust. These increase ischemic heart disease related deaths. This is dangerous as global burden of disease for India attributes half of air pollution deaths to heart disease.

Diesel particles are air toxins that are dangerous even at small trace amount as they are cancer causing. According to the California Air resources Board the number of excess cancer cases per million people due to lifetime exposure to diesel fume is 300 as opposed to 29 for benzene that comes from petrol.

Carcinogenicity is lower with improvement in emissions standards but at every subsequent stage cancer causing potential of diesel emissions is several times higher than that of petrol

Graph 1: Difference in toxicity or cancer causing potential of diesel and petrol emissions:



Source: Fraunhofer Institute for Toxicology and Experimental Medicine ITEM, Hannover, Germany

Industry omits to say in its submissions that the Health Effect Institute Study has considered the diesel engine meeting the advanced US Tier II standards for cars that are more stringent than current European standards. These cars are fitted with advanced particulate traps that are not available in India.

1.2: Car companies claim road dust is a bigger problem than vehicles

Road dust is also not harmless mostly because of vehicular pollution. A 2015 study by the University and Birmingham has studied road dust in Mathura Road, Delhi, in summer of June 2013 and found several elements, including copper, zinc, cadmium and lead in high concentrations. Tailpipe emissions and non-exhaust sources in vehicles like wear and tear of brakes, tyres and other auto parts are the major contributors along with industrial and biomass sources. To reduce toxic effect of road dust further reduction in vehicular

emissions and also environmental regulations for car tyres are needed.

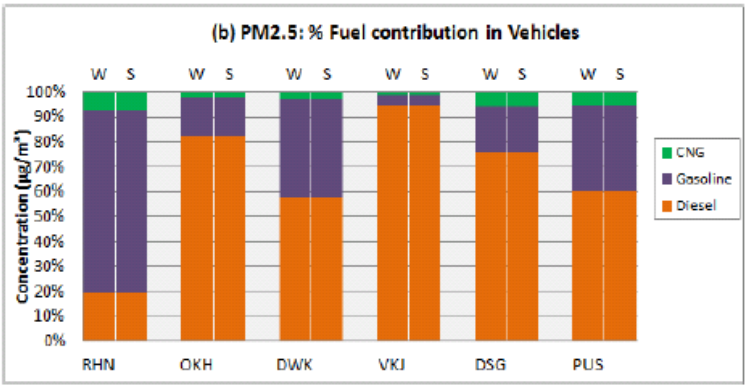
2. Diesel car numbers in Delhi and their emissions

2.1. Car industry has claimed that diesel cars contribute miniscule amount of particulate in Delhi's air.

Response

The Kanpur IIT study has shown that in different locations of their study in Delhi diesel vehicles contribute hugely to PM 2.5. Except Rohini where diesel vehicles were found to be emitting 20% of vehicles contribution to PM2.5, in Okhla, Vasant Kunj, Dilshad garden it contributed about 70-90% of PM2.5; in Pusa and Dwarka about 60%.

Graph 2: Contribution of fuels in vehicular pollution



Note: RHN: Rohini; OKH: Okhla; DWK: Dwarka; VKJ: VasantKunj; DSG: Dilshad Garden; PUS: Pusa
Source: Draft Report 2015 - Comprehensive study on Air Pollution and Green House Gases (GHGs) in Delhi (for Delhi Government) by IIT Kanpur

The same IIT Kanpur study has mentioned vehicles in Delhi not only contribute to the primary emissions but also the gases from vehicles like nitrogen oxides convert into nitrate particles in the air and add to the secondary particulate and increase the overall PM2.5 levels in the city. Vehicles contribute substantially to nitrogen oxide and sulphur dioxide.

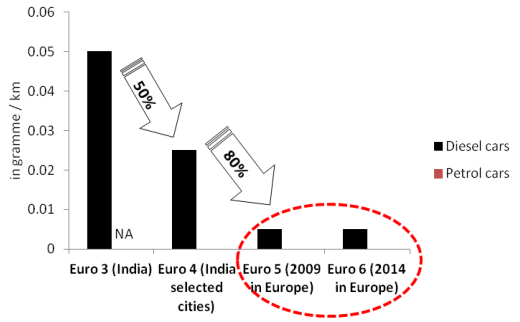
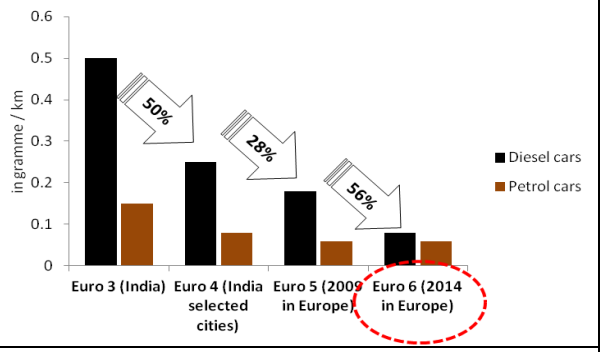
2.2. Car companies have claimed that diesel car numbers are very small and therefore do not matter.

Response

The recent IIT Kanpur draft study has carried out real time survey of the on-road fleet and found that petrol cars are 64 per cent, diesel cars are 25 per cent and CNG cars are 11 per cent of the total car fleet.

But pollution impact of smaller diesel car fleet is much higher than petrol cars in terms of particulate matter and NOx. Bharat Stage IV norms allow diesel cars to emit three times more NOx than petrol cars.

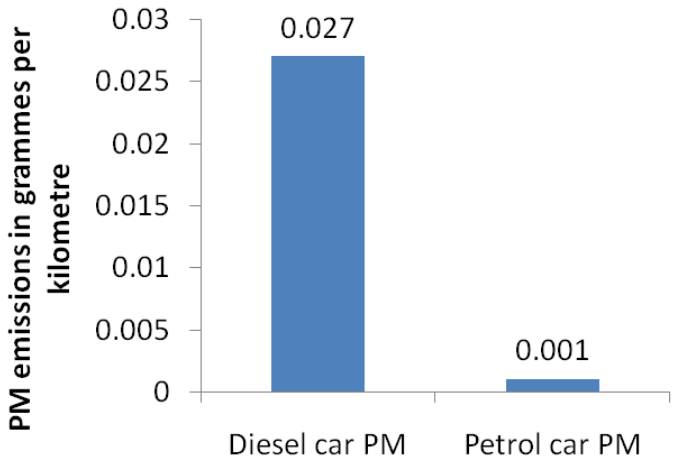
Graph 3: Comparison of norms for petrol and diesel cars

Particulate norms for diesel car	**NOx norms for petrol and diesel cars. (Diesel emissions equalize with petrol only at Euro VI level)**
	
Note: PM emissions from petrol vehicles are so negligible that these are not regulated in petrol vehicles Source: Based on data available in www.dieselnet.com	

The Automotive Research Association of India (ARAI) has tested cars meeting Bharat Stage III to show that diesel cars emit 7 times more particulate and 7.5 times more air toxic. ARAI has not released emissions factors for Bharat Stage IV cars. But emissions results reported for Euro IV cars in Europe show that Euro IV diesel cars even in Europe emit 27 times higher PM than petrol car.

Graph 4: PM emission from Euro IV petrol and diesel cars in Europe (gramme per kilometer)

A diesel car emits 27 times more PM than petrol cars

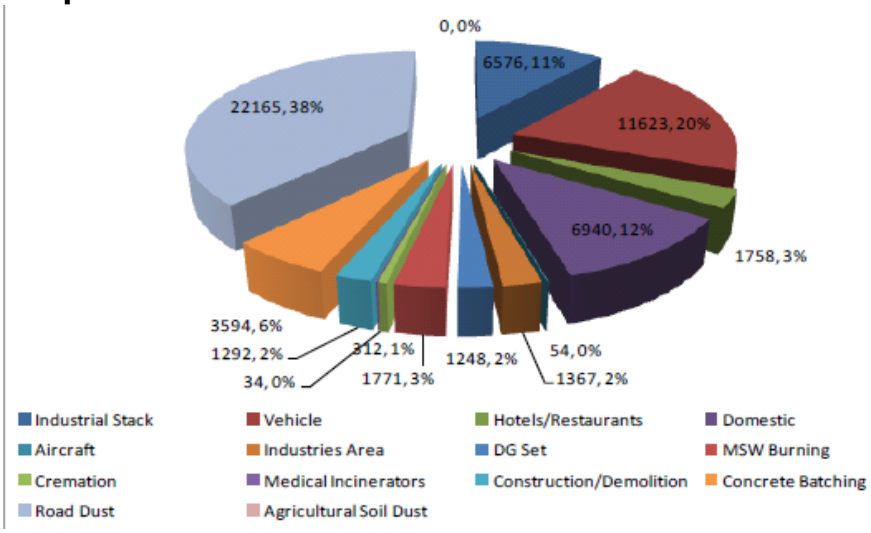


Source: Anon 2015, Driving away from diesel, Reducing air pollution from diesel vehicles, London Assembly, Environment Committee. Available in

2.4. Industry argues that vehicles are not an important source of pollution in Delhi.

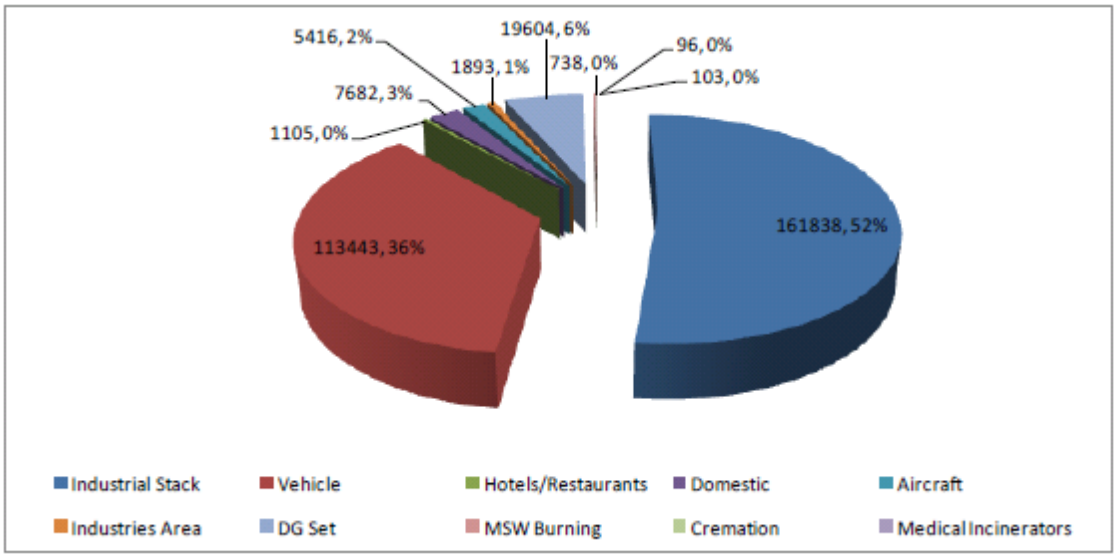
The IIT Kanpur study shows vehicles are the second largest emitter of particulate and nitrogen oxides in the city. If dust sources and combustion sources are combined vehicles are the second largest emitter of PM2.5. Among all the combustion sources vehicles are the top emitters. Vehicles are also the second largest emitter of nitrogen oxides after power plants.

Graph 5: PM2.5 emissions load from different sources



Source: Draft Report 2015 - Comprehensive study on Air Pollution and Green House Gases (GHGs) in Delhi (for Delhi Government) by IIT Kanpur

Graph 6: NOx emissions load from different sources



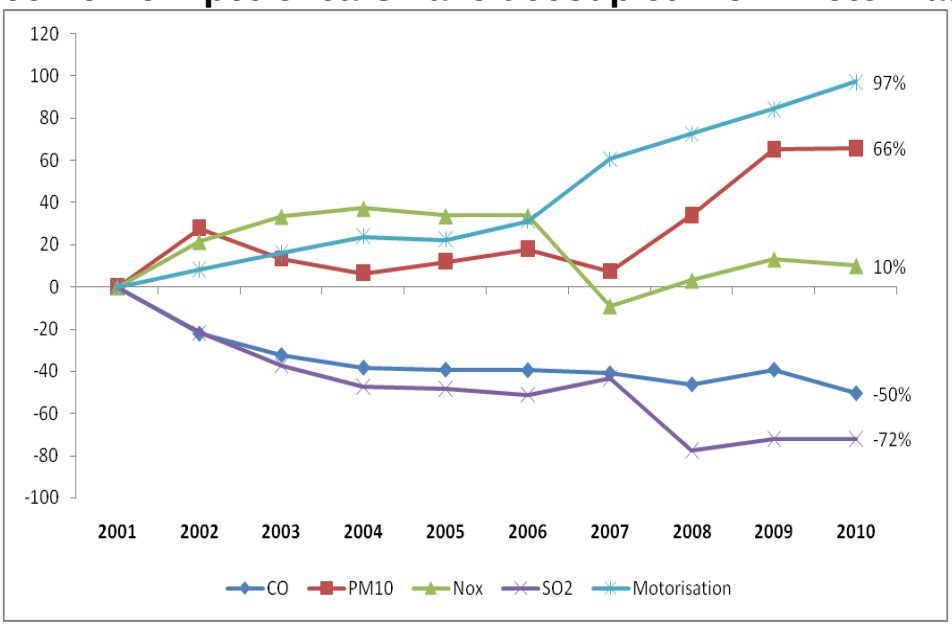
Source: Draft Report 2015 - Comprehensive study on Air Pollution and Green House Gases (GHGs) in Delhi (for Delhi Government) by IIT Kanpur

2.3. Industry has claimed that petrol cars can increase carbon monoxide levels in Delhi's air

While it is true that petrol cars emit more carbon monoxide (CO) than diesel cars but the CO levels in Delhi's air has already decoupled

from the motorization trend. But NOx and particulate are still strongly correlated.

Graph 7: PM and NOx, which are higher from diesel cars correlate with trend in motorization. But carbon monoxide that come from petrol cars have decoupled from motorization trend



Source: based on Air Quality Monitoring Project-Indian Clean Air Programme (ICAP) -- Draft report on "Emission Factor development for Indian Vehicles " as a part of Ambient Air Quality Monitoring and Emission Source Apportionment Studies, CPCB/ MOEF

4. Car companies claim Europe has encouraged diesel cars without affecting air quality

Response:

There is backlash against diesel cars in Europe today**.** Car companies omit to mention that Europe has implemented Euro VI emissions standards that require advanced particulate filters and NOx control. But even with that diesel vehicles are worsening NOx pollution in European cities leading to serious backlash.

In a dramatic development on December 11, 2015 a group of 24 scientists from leading scientific institutions in Europe and supported by scientists from the US have issued an open letter to the European policy makers expressing strong concern over impact of diesel cars

on air quality of Europe. They have appealed to say, “With the help of weaker standards, diesel cars have been granted pollution privileges by EU (European Union) law. As a result, poor air quality continues to have grave consequences for public health and European policy makers must act to correct this as a matter of urgency.”

In 2014 United Kingdom was dragged to the European Court of Justice for violating the NOx standards. Modern diesel cars meeting Euro VI emissions standards have been found to be emitting several times more NOx than their certification level.

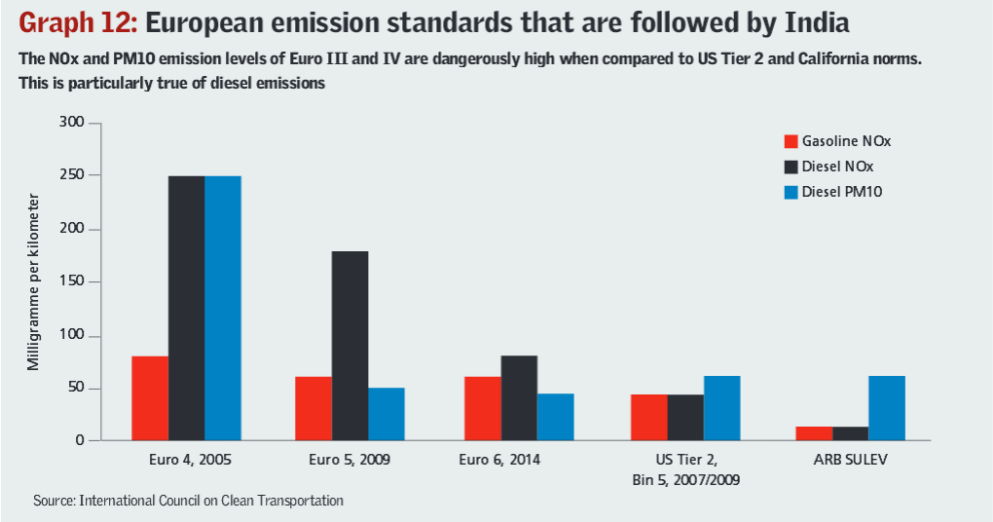
Paris is banning diesel cars by 2020. London has doubled the congestion tax on diesel cars.

5. Car companies claim Bharat stage IV emissions standards are clean. Asks for ban on older diesel cars but gives no proposal to meet Euro VI standards quickly.

Response

The current Bharat stage IV standards are 10 years behind Europe and very polluting**.** It is only at the level of Euro VI the emissions standards for diesel cars begin to close gap with petrol cars for both PM and NOx emissions.

Graph 8: Trend in European emissions standards and USA/California (in gm/km)



6. Car companies claim that old vehicles are bigger part of the problem. They want government to scrap Bharat Stage I, II and III and only allow Bharat Stage IV.

Response

Car companies are only interested in securing market for the current polluting Bharat Stage IV vehicles that are 10 years behind Europe through the scrappage policy. In India the future vehicle stock to be added in the coming decade is significantly higher than the current stock. If the date for Euro VI is pushed back that will lock in enormous pollution for many more years to come. For any scrappage policy for cars the replacement vehicle should be Euro VI compliant. Bharat stage IV diesel cars are not acceptable.

7. Car industry has contested the Hon'ble Supreme Court's direction banning luxury diesel cars with more than 2000 cc engines on the ground they are small in numbers; affluent should be penalized not the manufacturers; and loss of livelihood

Response:

The Chief Justice bench has established important principle that the fuel taxed low and subsidized for other uses should not be mis-used by the rich car owners as it is also very polluting. Serious health concerns around diesel emissions has already been established.

Moreover, petrol cars users pay 1.6 times higher central taxes per litre of fuel than diesel car user. Even a two-wheeler user pays higher taxes per litre of fuel used than a SUV owner.

Table 3: Central excise on petrol and diesel fuel

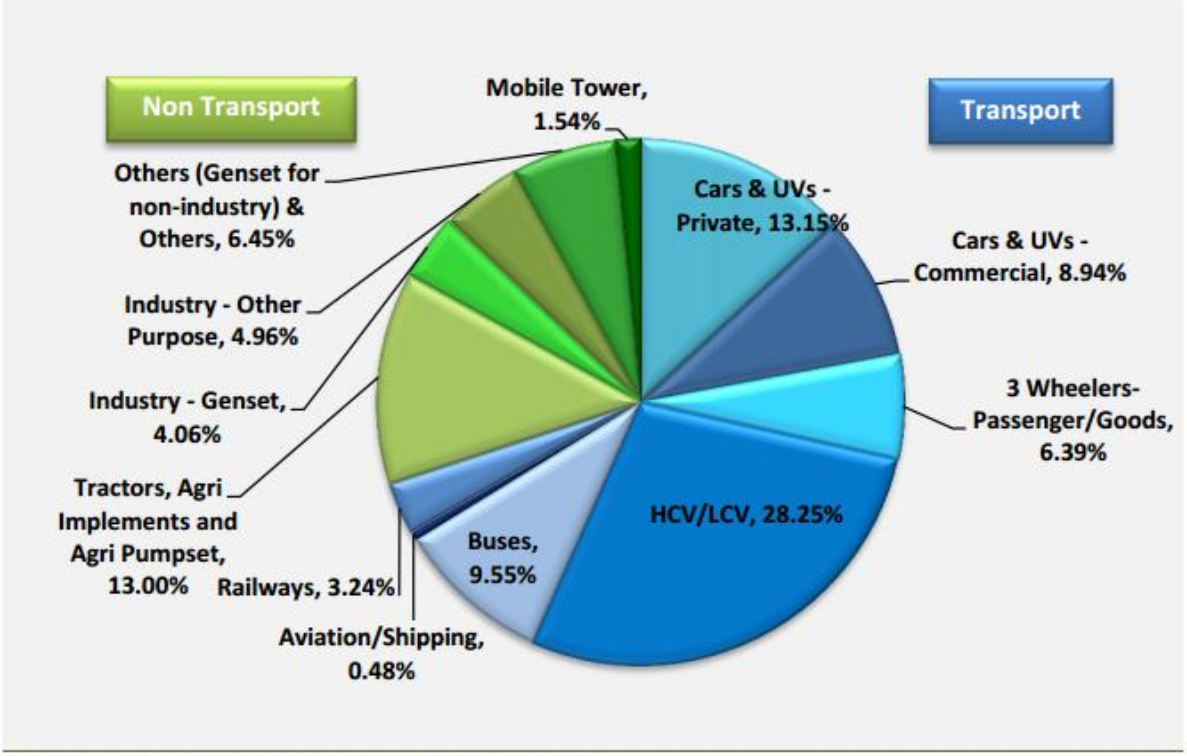
Fuel	**Basic Cenvat Duty**	**Special Additional Excise Duty**	**Additional Excise Duty**	**Total Tax**
Petrol	Rs. 7.36/ltr	Rs. 6/ltr	Rs. 6/ltr	Rs. 19.36/ltr
Diesel	Rs. 5.83/ltr	-	Rs. 6/ltr	Rs. 11.83/ltr

Source: Ministry of Petroleum and Natural Gas

After trucks at 28%, private cars have become the second highest user of diesel in the country at 13.15% -- as much as used in agriculture. Buses use about 9% of diesel. This brings out the misuse of low taxed and subsidized diesel fuel for luxury consumption.

Graph 9: Cars are the second highest consumer of diesel in the country

Figure 1: All India End-use Share (%) of Diesel in Retail and Direct Sales Combined



Source: Primary survey of ROs and PPAC

Souce: Ministry of Petroleum and Natural Gas, 2013

8. Globally, governments have either introduced clean diesel or have discouraged diesel cars:

All major vehicle producing countries including USA, Europe, Japan, South Korea etc have introduced clean diesel with advanced emissions control system. In the US, China and Japan diesel cars are a very small fraction of cars. In addition to this there are other countries that are discouraging diesel cars.

In Brazil diesel cars are not allowed because of the policy to keep taxes lower on diesel.
In China, taxes do not differentiate between petrol and diesel fuel.
Beijing has banned diesel cars as a pollution control measure.
Sri Lanka has imposed several times higher duties for diesel cars compared to petrol cars and have reduced diesel car sales.

Even in India several official committees have asked for special and additional taxes on diesel cars to neutralise the incentive of cheaper diesel fuel.

Recommendations

Enforce environment compensation charge at 30% of the price of the diesel cars

Restrict registration of diesel cars in Delhi and NCR till the time Euro VI is implemented.

Leapfrog to Euro VI emissions standards by 2020. Clean diesel is needed for trucks and other commercial vehicles.