CHAPTER–4

CLEANER TRANSPORT-PREVENTION AND ENFORCEMENT STRATEGIES

4. Cleaner Transport-Prevention and Enforcement Strategies

The primary source of pollution from 'Transport' sector is from burning of fuel, i.e., Diesel, Petrol, CNG and LNG in the Internal Combustion Engine (ICE) Vehicles.

In order to prevent the output of excessive tail-pipe emission from motor vehicles running on Petrol/CNG/Diesel/LNG, Government of India instituted Bharat Stage Emission Standards[22] (BS Emission Standards). The BS emission standards were first introduced in the year 2000 and progressively stringent norms have been implemented since then. All new vehicles manufactured after the implementation of the norms have to be compliant with these regulations. Currently, BS-VI emission standards are applicable throughout the country. Emission from in-use vehicles also depend on the maintenance and upkeep of vehicles. A small number of ill-maintained and unfit vehicles may contribute significantly to deterioration of air quality.

Hence, an effective emission testing regime for proper testing of all vehicles and issue of reliable Pollution Under Control Certificate (PUCCs)[23] is vital to check emission from vehicles. To prevent excessive tail-pipe emission from vehicles, emission testing regime needs to be complemented by an effective vehicle fitness testing program.

The responsibility of enforcing the provisions of the Motor Vehicles Act, 1988 and Rules framed thereunder, such as against vehicles found without valid PUCC, emitting visible smoke, impounding End of Life Vehicles[24] (ELVs), etc., is assigned to the Enforcement Branch of DoT.

Audit examined these preventive strategies i.e., emission and fitness testing system in Delhi, and also examined the adequacy and effectiveness of enforcement strategies to ensure reduction of vehicular emission. Audit observations are discussed in subsequent paragraphs.

4.1. Emission testing of motor vehicles

In terms of Rule 115(7) of Central Motor Vehicles Rule, 1989, all vehicles[25] on Indian roads are mandated to carry valid PUCC, which indicates that the vehicles' emission are in alignment with BS emission standards applicable and are not excessively harmful to the environment.

---

22 The standards and the timeline for implementation are set by the Central Pollution Control Board under the Ministry of Environment, Forests and Climate Change, Government of India.

23 indicates that the vehicle's emission is in alignment with applicable BS emission standards.

24 petrol vehicles more than 15 years old and diesel vehicles more than 10 years old.

25 After the expiry of a period of one year from the date on which the motor vehicle was first registered.

Pollution Checking Centers (PCCs) authorized by the state government issue PUCC if the vehicle is found meeting the prescribed emission norms. PCCs carry[26] out the PUC checks by inserting the sampling probe in the exhaust pipe of the vehicle for measuring emission. In case the vehicle is found emitting beyond norms, necessary repairs/ tuning in the vehicle are required. In NCT of Delhi as on June 2021, there were 969 PCCs (596 Petrol & CNG and 373 Diesel based). All these PCCs have been networked for automatic recording of all emission tests results in the central server.

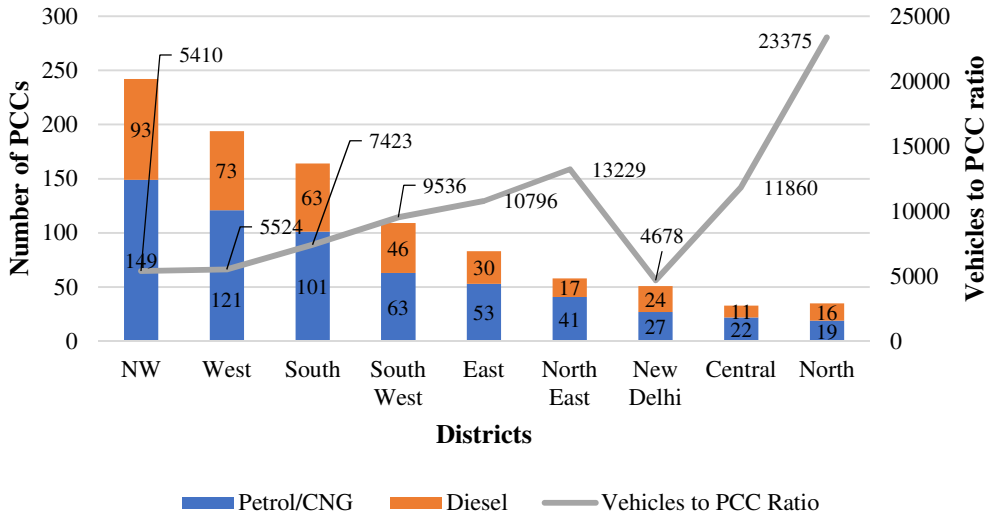
Audit assessed the availability of PCCs, adequacy of PUC checks, reliability of PUC checks conducted by PCCs and oversight mechanism of DoT over these PCCs. The observations are as follows.

4.1.1. Adequacy of Pollution Checking Centres (PCCs)

Audit noted that out of the 969 PCCs in Delhi (June 2021), 664 were situated at fuel stations, 47 at Bus Depots and 258 at Service centers, Workshops, etc. Thus, 31 *per cent* PCCs situated at bus depots and service centers/workshops catered to specific category of vehicles only and were not accessible to general public. Moreover, these PCCs (bus depots and workshop) had conducted only an average of seven PUC check per day during the period 2019-20.

Moreover, there was skewed distribution in location of PCCs across Delhi, as 62 *per cent* of the PCCs were located in only three out of nine zones as shown in **Chart 4.1**.

Chart 4.1: Skewed zone-wise distribution of PCCs



Source: PUCC Portal of DoT

[26] In petrol vehicles, carbon monoxide and hydrocarbon concentration is measured at two speed idle tests (along with Lambda measurement in four wheelers fitted with three-way catalytic converters). In Diesel vehicles, free acceleration smoke test or snap acceleration test that measures smoke emission is conducted.

DoT stated (September 2021) that vehicle owners prefer to get their vehicles checked for PUC levels from petrol pump where they regularly visit for getting fuel in comparison to a PUC Centre located at dealer's workshop where they only visit for service and repairs and that visit may not coincide with the date of expiry of their PUCC.

It further stated (September 2021) that skewed zone-wise distribution of PCCs to zonal inconsistencies was due to less number of vehicles in the smaller zones.

Reply is not tenable as analysis of Zone wise number of vehicles registered and PCCs revealed that though on an average 8,000 vehicles were registered in Delhi for each PCC, the ratio varied from less than 5000 vehicles registered per PCC in New Delhi zone to more than 23,000 vehicles registered per PCC in North zone (**Annexure-III**).

The Department may like to examine reasons for such skewed zone-wise availability of PCCs in Delhi, especially in North zone. The department could also explore providing automated pollution check centers in public accessible places like resident colonies etc. enlisting cooperation of registered Resident Welfare Associations (RWA), etc., in Delhi.

4.1.1.1. PCCs at DTC/Cluster Bus Depots

The National Green Tribunal (NGT) directed (December 2014) that the DTC shall ensure that every bus belonging to DTC or operating under its directions (cluster buses) will be subjected to check for PUC at least twice a month.

In order to properly adhere to the directions of NGT, PCCs were setup at DTC Depots from February 2016 onwards whereas for cluster buses, the same were set up only from July 2016 onwards.

DTC was having PCCs[27] on all of its Depots as of March 2021 whereas, out of 10 Cluster Bus Operators, only six operators have set up PCCs[28] as of 31 March 2021. Thus, four Cluster Bus Operators[29] were dependent on general PCCs.

DoT stated (November 2021) that it shall ensure frequency of PUC check of cluster buses at par with DTC as per NGT directions.

4.1.1.2. PCCs at Showrooms/Workshops

As per DoT order (January 2015), all the vehicle dealers to whom trade certificates were already issued were to apply for setting up PCCs in their showrooms/workshops. Likewise, no trade certificate was to be renewed unless the dealer submitted an undertaking that he had applied for PCC at his workshop/showroom along with a copy of application thereof.

---

[27] 41 PCCs Set up between February 2016 and December 2016.

[28] Five PCCs set up between July 2016 and November 2017 and one PCC in July 2020.

[29] M/s Young Optimistic Transport solution, M/s Uniworld Transerev Pvt Ltd, M/s Intact Transport Pvt Ltd and M/s Great Value fuel Pvt Ltd.

Audit, however, observed that as of January 2021, PCCs were not available in 272 (60 *per cent*) out of 448 vehicle dealers' showrooms/workshops in Delhi.

DoT stated (September 2021) that many vehicle dealers' showrooms/workshops in Delhi have more than one showroom/workshop but do not have PCC at all showrooms/workshops.

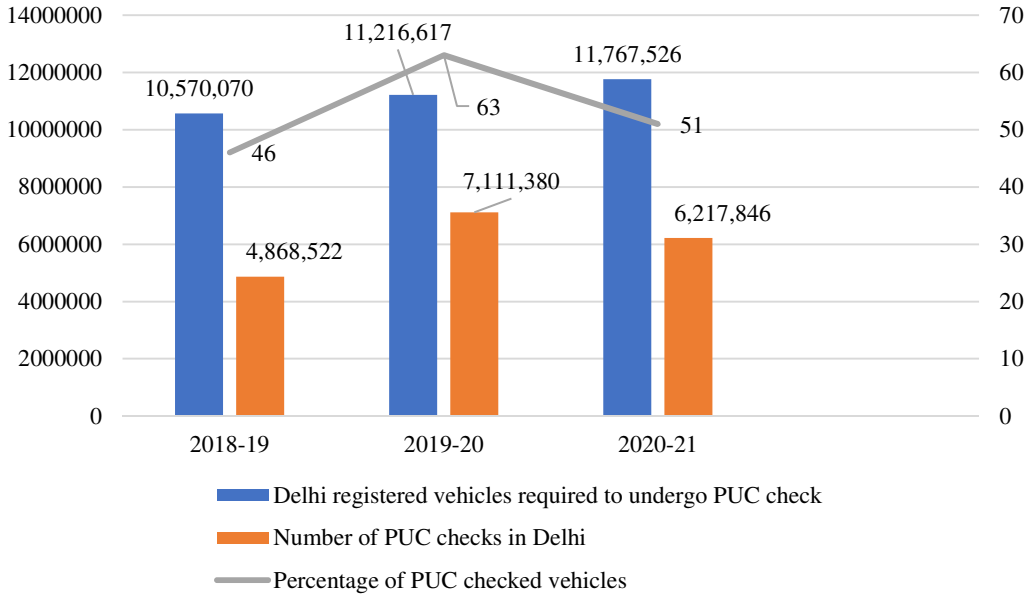
Reply of the Department was general in nature and indicates laxity in implementing its own orders as all workshops/showroom were to establish PCCs irrespective of number of showroom/showroom owned by same dealer.

4.1.2. Shortfall in number of vehicles put to emission testing

As per CMV Rules 1989, every motor vehicle (including those conforming to BS-I/BS-II/BS-III/BS-IV/VI as well as vehicles plying on CNG/LPG) was required to carry a valid PUCC after the expiry of a period of one year from the date of its first registration. The validity of PUCC for four wheeled BS-IV and BS-VI compliant vehicles is one year and for the other vehicles, it was three months.

The NGT directed (18 December 2017) for regular checking of vehicles to ensure maintenance of emissions within the prescribed values. The number of vehicles put to PUC check during 2018-19, 2019-20 and 2020-21 were as given in **Chart 4.2** below:

Chart 4.2: PUC checks in Delhi



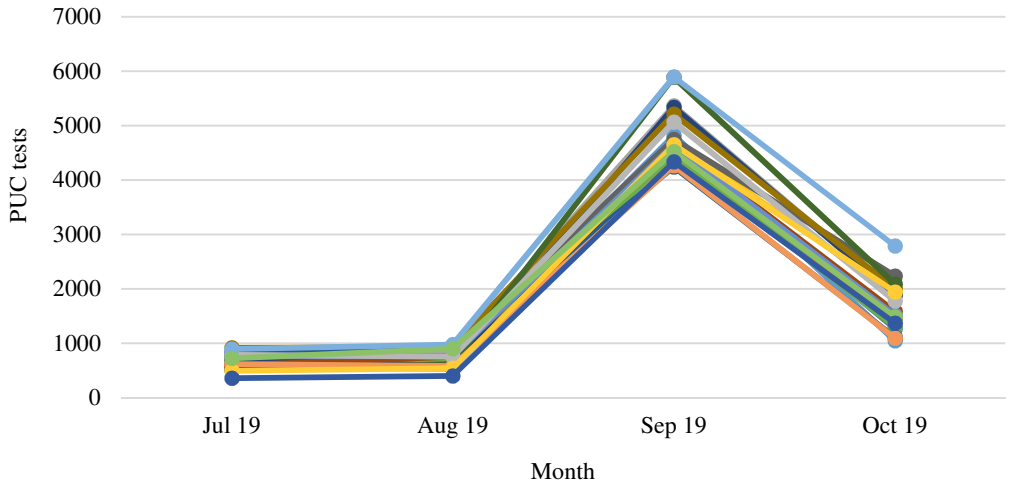
Source: VAHAN Dashboard and data furnished by DoT

It could be seen from **Chart 4.2** that the number of Delhi registered vehicles actually tested for PUC in Delhi ranged between 46 to 63 *per cent* of the vehicles due for PUC checks during 2018-19 to 2020-21. It is pertinent to mention that vehicles of pre-BS-IV norms require quarterly PUC checks, i.e., four PUC checks in a year.

Thus, it can be deduced that substantial number of the vehicles registered in Delhi were not undergoing emission testing.

In September 2019, enhanced penalty[30] provisions were introduced for plying of vehicles without a valid PUCC. Audit analysed the trend of PUC checks during the period of four months from July to October 2019. In 19 test-checked PCCs, audit observed that 12,901 and 13,798 PUC tests were conducted in July and August 2019 respectively, which sharply increased to 91,914 PUC tests in September 2019 and thereafter declined to 31,717 tests in October 2019.

Chart 4.3: Sharp increase in PUC tests after enhanced penalty provisions, at test-checked 19 PCCs



Source: PUCC Portal of DoT

It is evident from this trend that these vehicles were plying without a valid PUCC till August 2019, and got tested in September 2019 due to the enhanced penalty provisions only. DoT did not clarify on Audit contention which evidently indicated that these vehicles were plying without a PUCC prior to this period.

Audit noted that the PCCs in Delhi were networked with VAHAN[31] portal however, no mechanism was evolved to impose automated challans to Delhi registered vehicles which were overdue for PUC checks nor any disincentive was imposed for obtaining a PUC certificate beyond prescribed period. Likewise, no mechanism was evolved by DoT to verify compliance of obtaining PUCC of vehicles which were earlier issued challan for not having a valid PUCC.

[30] As per the Motor Vehicles (Amendment) Act, 2019, the fine for offence relating to plying of vehicle without a valid PUC certificate was increased from Rupees one thousand to Rupees ten thousand under Section 190(2) of the Act, along with provision for imprisonment for a term which may extend to three months.

[31] Maintains vehicle related data.

Government may devise a mechanism wherein the issue of SMS reminders/challans for not obtaining a PUCC is automated, with due checks[32] in place. In cases where a vehicle is issued challan for not having valid PUCC, a follow-up mechanism should be evolved to ensure that PUCC was obtained by the vehicle subsequently. GNCTD may consider conducting survey to ascertain the reason for shortfalls in PUC check and increase the number of PCCs. The cost and periodicity of obtaining PUCC could be reviewed to make it more reasonable and acceptable to public with incentives for compliance. Categories for PUCC for Public/Private and Petrol/Diesel vehicle could also be separately contemplated.

DoT replied (November 2021) that substantial efforts have been made from August 2021 onwards, which includes issuing public notices, bulk reminder SMSs, and heavy deployment of enforcement teams. Further, as recommended by Audit, issuing of e-challans to the PUC defaulters was under contemplation by taking legal opinion on the matter.

4.1.3. Shortfall in emission tests of Public Transport Vehicles regulated by GNCTD

Audit examined the process of emission testing of public transport vehicles running under the aegis of GNCTD. During the analysis, the following issues were observed.

4.1.3.1. Public Transport Buses

DTC and Cluster scheme buses were required to undergo emission testing twice[33] a month. Audit observed shortfall of emission testing in respect of DTC and cluster scheme buses.

None of the cluster buses had obtained PUCC at prescribed intervals. Audit noted that during April 2018 to August 2019 only 2,980 PUCCs (five *per cent)* were obtained by 1,734 cluster scheme buses against the requirement of 58,956 checks during the same period. Further, 13 cluster scheme buses were never subjected to PUC checks during 2019-20.

In respect of DTC buses, 345 buses (nine *per cent*) were never subjected to emission tests during September 2015 to March 2019. During April 2019 to March 2020, no DTC bus obtained PUCC at the prescribed intervals.

Audit observed that despite significant shortfall in PUC checks by cluster scheme and DTC buses, DoT failed to impose penalty on them. Evidently, only four challans were issued to DTC and no challans were issued to cluster buses during November 2018 to October 2020, reflecting deficient enforcement by DoT to prevent vehicular emission in Delhi. This indicates a lackadaisical approach by the

[32] As an illustration, if a vehicle obtains PUCC from other state which is not linked to VAHAN, the owner may be given option to upload that PUCC and the challan may be cancelled.

[33] As per the NGT's instructions of December 2014.

GNCTD. A punitive mechanism may be enforced to ensure periodical PUC checks of all the buses.

DoT stated (October/November 2021) that it shall ensure frequency of PUC check of cluster buses at par with DTC as per NGT directions.

4.1.3.2. Gramin-Sewa vehicles

Since 2010-11, 6,153 Gramin-Sewa vehicles (GSV) plying in Delhi were required to obtain PUCC quarterly. Audit noted a shortfall of 91 *per cent*[34] in subjecting the GSVs to emission tests during April 2015 to March 2019. During the period from April 2019 to March 2020, only 3,476 out of 6,153 GSVs got PUC testing done. Moreover, instead of quarterly tests, these 3,476 vehicles obtained the PUCC only once during this period.

DoT stated (September 2021) that Enforcement teams regularly check GSVs and prosecute in case of any violation.

The Department's reply is vague and does not respond to the issues raised by Audit.

While the Government was expected to subject these vehicles to regular PUC checks to lead from the front and showcase its sincerity towards reducing vehicular emission, it was noted that there was severe shortfall in emission testing of public transport buses and GSVs, which were operating under the regulations of DoT.

4.1.4. Irregularities in conduct of PUC checks by PCCs

4.1.4.1. PUCCs to diesel vehicles failing emission test

MoRTH Notification No. GSR 103 (E) dated 23 February 2012 under Rule 115 of CMVR 1989 had stipulated free acceleration test for pre BS-IV and BS-IV diesel vehicles.

As per the PUC database furnished by DoT for the period 10 August 2015 to 31 August 2020, 22.14 lakh diesel vehicles were checked at PCCs. Audit observed the following deficiencies in these tests.

- Test values were not recorded in respect of 24 *per cent* vehicles, i.e., 5.38 lakh out of these 22.14 lakh vehicles. However, these were declared 'Pass' and issued a PUCC. This raised doubts about genuineness of PUCCs for these vehicles.
- In 4,007 cases, even though the test values[35] were beyond the permissible range, these diesel vehicles were declared 'Pass' and issued PUCC.

As regards not depicting of emission values in the database, DoT replied (November 2021) that 50 sample cases (out of 5.38 lakh) shared by audit were five

[34] Gramin Sewa Veicles were tested for PUC checks on 8,632 occasions against requirement of 98,448 PUC tests during April 2015 to March 2019.

[35] As per free acceleration test for BS-IV norms the maximum smoke density should be 1.62 light absorption coefficient and 50 Hartridge units against which the test values varied between 1.63 and 2.44 and between 52 and 65 respectively.

years old and there was possibility of bugs in the system. DoT further stated that it is in the process of handing over the PUC management system to NIC in place of Delhi eGoverance Society (DeGS[36]) software which may have some bugs.

The reply is not acceptable since the 5.38 lakh cases of incomplete PUCCs pointed out in audit were extracted from the data provided by DoT and these cases pertained to period from August 2015 to August 2020. Thus, the contention of DoT that the data is old is devoid of merit. Moreover, the DoT need to fix bugs in the system to make PUC system credible.

4.1.4.2. PUCCs to petrol vehicles failing the emission test

Every motor vehicle operating on Petrol/CNG/LPG, manufactured as per BS-IV norms is required to comply with idling and high idling applicable emission standards for Carbon Monoxide (CO), Hydro Carbon (HC) and Lambda[37] notified by MoRTH, GoI vide Notification No. GSR 103 (E) dated 23 February 2012 under Rule 115 of CMVR, 1989.

Audit observed the following deficiencies in emission tests of petrol vehicles:

- As per the PUC database for 10 August 2015 to 31 August 2020, 65.36 lakh Petrol/CNG/LPG vehicles were issued PUCCs. However, 1.08 lakh vehicles were declared 'Pass' and issued PUCC despite emitting CO/HC beyond the permissible limits.
- During 18 August 2017 to 31 August 2020, 10.61 lakh BS-IV petrol driven vehicles were put to lambda test[38]. Out of these, 9.89 lakh vehicles were declared 'Pass' and issued PUCCs.
    - 5661 vehicles were declared 'Pass' despite the fact that the Lambda values were beyond permissible range of 0.97 to 1.03.
    - Lambda value was not found recorded in 52,555 cases (five *per cent)* out of the total cases. Thus, Audit could not confirm whether these vehicles really passed the Lambda test.

Hence, there were discrepancies in emission testing of Petrol/CNG/LPG vehicles as vehicles were declared 'Pass' despite failing the test. Moreover, test values were not recorded in several cases due to which correctness of PUCCs cannot be ensured.

DoT replied (November 2021) that it is in the process of handing over the PUC management system to NIC in place of Delhi eGoverance Society (DeGS) software which may have some bugs.

---

[36] Provides consultancy and software development services to various departments of GNCTD.

[37] The Lambda is a dimensionless value representative of the burning efficiency of an engine in terms of the air/fuel ratio in the exhaust gases. The Lambda testing for petrol driven BS-IV motor vehicles was mandatory.

[38] Lambda test was integrated with the online PUCC portal from 18 August 2017.

4.1.4.3. Multiple PUCCs within unreasonably short time

Before issuing a valid PUCC, the PCC has to carry out a specified procedure for each vehicle, which in turn requires reasonable time before the next vehicle can be checked at the test centers.

Test check of PUC database (September 2019) revealed that in 7,643 cases, more than one vehicle was shown to have been checked for emission limits at the same time at the same center. Likewise, 76,865 cases were noticed in same test center wherein only one minute lapsed in checking of vehicle along with issuance of PUC certificate. Since neither a PUCC can be issued simultaneously to two vehicles at a PCC nor it is possible to carry out the entire procedure in one minute, it is suspected that the specified procedure for emission testing of each vehicle was not followed in these cases. Despite linkage of all PCCs with central server, DoT failed to analyze the captured data to figure out suspected unscrupulous practices adopted by PCCs during emission checking of vehicles.

DoT informed (October/November 2021) that PCCs are now being issued show cause notices for irregularities in testing procedures, initially targeting with PCCs having only one to two *per cent* failure rate. It was also stated that 211 PCCs were inspected and 53 were issued show cause notices till 8 October 2021. Also, a minimum time-gap between consecutive PUC checks is being implemented.

In addition to issuing show cause notices for irregularities, GNCTD needs to identify the lapses on part of the DoT and appropriate punitive actions may be initiated.

4.1.4.4. Manual selection of BS Emission standards category

As per the directions of the Supreme Court, the Ministry of Road Transport and Highways, GoI issued (June 2018) a notification for linking of PUCC data with VAHAN database. In terms of the notification, the following schedule/timeline for linking of emission data with VAHAN database was notified:

Table 4.1: Timeline for linking of emission data with VAHAN database

Sl. No.	List of States	Date of implementation
1	National Capital Territory of Delhi	01.06.2018
2	Haryana, Rajasthan, Uttar Pradesh	01.10.2018
3	All other states except those mentioned above	01.04.2019

Source: GoI Notification

Audit, however observed that PCCs in Delhi were still permitted to manually select the emission standards in case of vehicles whose details were not fetched from the VAHAN Database. This provides the scope for manipulation to compromise with stringent checking of emission limits as well as with validity of the PUCC.

DoT stated (September 2021) that manual selection of BS category was allowed in cases of old vehicles and in some cases where norms were not available in VAHAN database. The reply is not tenable as it did not furnish specific reasons for

incomplete linking of emission data and VAHAN database. Issuing of PUC certificates on the basis of manual selection reflects lack of seriousness in enforcing directions of Supreme Court.

Thus reliability of PUCCs issued was compromised as vehicles were declared 'Pass' despite emitting excess emission, without recording the test values, and PUC checks were conducted in unreasonably short time. Government needs to ensure strict adherence to prescribed procedure for PUC testing of vehicles for arriving at reliable test values before issuing a 'Pass' certificate. Government should also review the test results periodically to ensure integrity of the emission testing system. Emission data (PUCC) needs to be linked to VAHAN database at the earliest.

4.1.5. Deficient monitoring of PCCs by DoT, GNCTD

4.1.5.1. Inspection and Third-party audit of PCCs

The EPCA assessed (February – March 2017) the PUC programme in Delhi NCR and besides recommending various mitigating measures, it emphasized (April 2017) on inspection of PCCs for quality control and introduction of annual third-party audit of the PCCs. These measures are also important to ensure credible and real-time testing of vehicles to bring the operators within a strong accountability framework. DPCC was to do coordination as per CPCB guidelines.

Audit, however, observed that neither the periodicity for inspection of PCCs was fixed by DoT nor the inspection of PCCs was undertaken on a regular basis.

DoT attributed the lack of inspection to shortage of inspecting staff and assignment of additional duties to the existing Pollution Control Officers.

Delhi Budget Speech 2018-19 also envisaged a third-party audit programme for PCCs. Audit observed that the system of third-party programme was not finalised as of March 2021. The proposal of DoT to conduct third-party audit was pending for approval of competent authority for more than two years.

Thus, neither DoT inspected PCCs on its own, nor instituted third-party audit of PCCs. This not only resulted in a weak accountability framework for PCCs, it also encouraged issuing of wrong PUCCs without checking vehicles as per PUC norms, as mentioned in the preceding paragraphs.

DoT informed (October 2021) that it would consider the third-party audits and for inspection of PCCs, action has been initiated recently. DoE stated (October 2021) that necessary follow-up with the agencies concerned shall be done.

4.1.5.2. Inspection not done of PCCs issuing valid PUCCs to vehicles later found polluting

During November 2018 to October 2020, DoT had issued 53,655 challans for vehicle emitting visible smoke. Audit observed that out of the issued challans, 52,711 challans (more than 90 *per cent*) were issued to vehicles carrying a valid PUCC. This casts doubt over the reliability and veracity of PUC centers who had issued these PUCCs. DoT however had not setup any mechanism of internal inspection of such PCCs.

DoT stated (September 2021) that visible smoke from vehicles mainly depends on factors like adulterated fuel, malfunctioning of injectors, poor maintenance of vehicle, overloading of the vehicles and improper setting of engine of a vehicle. Further, the PUCC is issued to a vehicle with a validity from three months to one year in which period a commercial vehicle covers around 20,000-80,000 kms, therefore, the possibilities of emitting visible smoke in a vehicle due to the above reasons is quite high. It was further stated that the efficacy of pollution equipment depends on its calibration and that the software does not permit issuance of PUCC from any uncalibrated equipment, thus the inspection of the testing equipment at PCC is not required.

The reply questions reliability of PUCC mechanism which is the responsibility of DoT and therefore is not acceptable. Despite advisory (August 2017) of MoRTH, the Department did not implement calibration of PUC equipment by third party agencies, critical to get authentic results.

4.1.5.3. Reliability of equipment not ensured

In order to keep a check on the production quality of the instrument, the Conformity of Production (COP) testing for instruments manufactured / supplied in India was introduced. The Automotive Research Association of India (ARAI), Pune, issues the above-mentioned COP to certify the production quality of the testing equipment. Audit observed that DoT had no mechanism to ensure that the testing equipment installed at PCCs were part of the quantity produced/ approved as per the COP certificate issued by ARAI.

The MoRTH, vide an advisory to State Governments conveyed (29 August 2017) the directions of the Supreme Court, which required calibration of PUC machines at regular periodicity by third-party agencies, duly authorised by DoT.

Audit observed that DoT had not authorised any third-party agencies for calibration of the PUC equipment and only the manufacturers/authorized dealers were certifying the calibration.

Audit also observed that DoT had not devised any mechanism to ensure that Gas Analyzer, Smoke Meter, Computer and related infrastructure installed at PCCs were under Annual Maintenance Contract (AMC) for efficient working of PCCs.

DoT stated (September 2021) that the calibration of PUC machine is carried out by third party, i.e. machine manufacturer or its authorised dealer in compliance with the Type Approval Procedure (TAP) which interalia includes Code of Practice by ARAI which is also part of the CMVR. Thus, primarily the responsibility for ensuring that the field equipment of PCCs are in properly calibrated condition is entrusted to the manufacturer/suppliers of the PUC equipment. The above facts were sent to MoRTH and there were no further query and matter was closed/accepted. Further, the Department has modified its software for the issuance of PUCCs to incorporate the uploading facility in respect of calibration certificates

of the PUC equipment by the PCCs. The PUC activity is automatically stopped by the software whenever the calibration of machine gets expired.

Reply is not acceptable due the following reasons:

- Checking of PUC equipment by the manufacturers/dealers themselves cannot be treated to be as undertaken by a third party for deriving independent assurance.
- Mere sending comments to MoRTH for not complying with directives of Supreme Court does not qualify as consent of any authority.
- Moreover, the Code of Practice as referred to by the Department was issued by MoRTH in March 2010 and does not restrict third-party calibration of PUC equipment as mentioned in advisory issued by MoRTH in August 2017 and the contention in this regard indicates reluctance of the Department in implementation of initiatives for improving systems of PUC checking.

Thus, DoT was not in a position to ensure reliability of the equipment installed and used for emission testing by PCCs.

4.1.5.4. Not ensuring compliance with own directions to PCCs regarding Malfunction Indicator Lamp (MIL)

Malfunction Indicator Lamp (MIL) found on instrument panel of most automobiles is a computerized engine management system to indicate malfunction. After start of vehicle engine if no monitored faults exist, indicator lamp turns off.

DoT had directed (August 2014) all the PCCs to perform a visual check of MIL at the instrument panel of all gasoline or diesel driven BS-IV four wheeled vehicles up to 3.5 tons GVW, before emission testing. PCCs were directed not to carry out the PUC check if the 'MIL' remains 'ON' after the engine of the vehicle has been started. The PCCs were also required to submit a monthly report of vehicles that were not checked because 'MIL' remained 'ON' after the engine of the vehicle had started.

Audit, however, observed that requisite periodical reports were not submitted by PCCs and DoT left the onus of ensuring compliance on PCCs. Thus, DoT failed to ensure compliance of its own directions of August 2014.

DoT informed that no report is submitted by PCCs. A feature was incorporated in the software where PCC operator has to ensure that MIL of vehicle does not remain 'ON' before start of PUC test. Apart from this, DoT had also issued a circular in August 2014 to ensure compliance.

Since DoT did not ensure that the emission tests were conducted only after checking the 'MIL' status, the reliability of PUCCs issued was not ensured. Further, DoT also failed to provide requisite software generated reports to Audit.

DoT reiterated (September 2021) the facts already mentioned in the para, but failed to produce software generated reports in support of its reply.

4.1.5.5. Conclusion

Thus, Emission testing system in Delhi was marred by skewed zone-wise distribution of PCCs, negligible test conducted by PCCs at bus depots and showrooms/workshops, overall shortfall in PUCC tests conducted, irregularities in tests conducted by PCCs, absence of mechanism to automate the issue of SMS reminders/challans to vehicles for not obtaining a PUCC after due date and absence of supervision of PCCs by DoT. Regarding irregularities in tests conducted by PCCs, responsibility needs to be fixed and appropriate punitive actions may be initiated.

Given the large number of vehicles that ply on Delhi roads, risk of vehicle owners not getting PUC checks done remains high. This can be prevented by the Government by taking advantage of the central database available for vehicles, through which automatic SMS reminders/ challans can be issued if vehicle doesn't renew the PUCC by due date. Measures should be taken to incentivize carrying out the PUC checks. These need to be supplemented with adequate number of PCCs and a robust oversight mechanism on the functioning of PCCs to ensure integrity and reliability of the PUCCs issued. The Department should also ensure installation of PCCs at places which are not crowded and easily accessible to public.

4.2. Technological alternatives to conventional emission testing

Considering the heavy influx of vehicular traffic on daily basis, unreliable PUC system, and a weak monitoring and enforcement mechanism to identify polluting vehicles, it is paramount that technological solutions are adopted, which can detect polluting vehicles without affecting the regular traffic flow. Also, measurement of tail-pipe emission from vehicles during normal on-road operation is key to any effective system of emission checking, as it detects discrepancies between certification-test-performance and actual vehicle emission.

Remote Sensing Technology is a quick and effective method for screening of vehicles for identification of high pollution emitters on roads as the vehicles drive through ultraviolet and infrared beams cast across a roadway.

In January 2009, DoT had deliberated upon Remote Sensing Devices (RSD) for on-road pollution checking of vehicles and decided to procure requisite equipment for strengthening pollution control infrastructure. It also conducted (August 2009) a trial exercise through on-road demonstration of RSD equipment in collaboration with Automotive Research Association of India (ARAI) and an RSD supplier. Thereafter, a Notice Inviting Tender (NIT) was issued (May 2011) by DoT for 19 RSDs to be installed at entry points[39] of Delhi. Tendering Committee recommended (January 2012) procurement of these RSDs. However, the recommendations of committee were not approved and matter remained under

[39] (1) GT Karnal Road, (2) Rajhokari, (3) Badarpur, (4) Shahadra, (5) Kalinidi Kunj, (6) Gazipur, (7) Mohan Nagar, (8) Tikri, (9) Aya Nagar, (10) Kapashera, (11) Noida Major, (12) New Mandoli, (13). Loni Road-1, (14) Prahaldpur, (15) New Kondli, (16) Chander Nagar, (17) Noida Bridge, (18) Dhansa and (19) Jharoda.

discussion in DoT. Since the tender validity had already expired, the Department annulled (March 2013) the tender.

The issue of exploring the RSD based PUC checking in Delhi was again flagged by Ministry of Environment, Forests and Climate Change, GoI in April 2015. A study was conducted (June 2017 to February 2019) by International Centre for Automotive Technology (ICAT) in Delhi using RSD, which concluded that the RSD technology was found to be effective and helpful in checking emission. The EPCA recommended (April 2018) introduction of road-side remote sensing screening of emission in Delhi. As per directions (May 2018) of the Supreme Court, EPCA submitted (July 2019) the timelines for action by MoRTH and DoT, GNCTD for implementation of RSD technology. DoT, GNCTD was to issue global tender for procurement of five RSD machines and finalise site and sampling plan within three months. Further, ten additional units were to be procured after the first five units become operational for a full year.

DoT, however, filed an affidavit (August 2019) pleading for considering procurement of one or two RSD for the time being and remaining activities to be undertaken by DoT to be initiated only after the activities to be undertaken by the MoRTH were completed. The Supreme Court however, found (August 2019) the objections raised by DoT baseless and directed MoRTH and Ministry of Law to take a final decision and report to the Court within two months. Audit noted that Automotive Industry Standard Committee (AISC)[40] prepared a draft[41] on Product Specifications and Programme Guidelines for RSD in September 2020.

The fact remains that as of March 2021, the RSD technology for pollution monitoring and controlling was not being used in Delhi.

DoT replied (November 2021) that it shall explore the possibilities to use the technology.

4.3. Fitness testing of motor vehicles

As per Section 56 of Motor Vehicle Act, 1988, a commercial (transport) vehicle shall not be deemed to be validly registered, unless it carries a certificate of fitness in such form as may be prescribed by the GoI. Non-commercial vehicles are not required to obtain fitness certificate for the first fifteen years of their life. The CMVR stipulates specified checks and tests (**Annexure-IV**) to be carried out by Inspecting Officer or authorized testing stations, before renewing the annual fitness certificate of vehicle.

In NCT of Delhi, there were two dedicated Vehicle Inspection Units (VIU), viz. VIU Burari and VIU Jhuljhuli for checking the fitness of vehicles and issuing certificates of fitness. Of these two VIUs, one at Jhuljhuli is an automated testing centre while VIU Burari is not automated. The non-automated system of checking fitness of vehicles is not supported with any instrumentation or equipment and

[40] Formed by MoRTH to review the safety in the design, construction, operation and maintenance of motor vehicles.

[41] Draft AIS/170/DF by AISC.

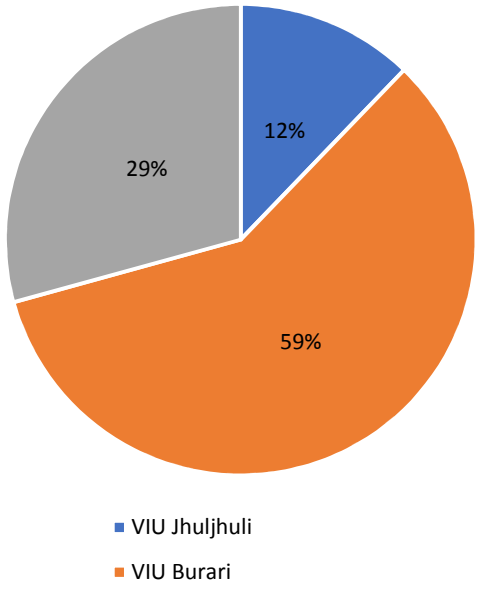
involves visual inspection wherein decision for declaring the fitness of vehicle is based on the judgement and discretion of vehicle inspector. On the other hand, inspection of vehicles at automated testing centre is based on automated testing lanes with limited human interference.

Audit examined the records relating to fitness testing by GNCTD and observed the following.

4.3.1. Limited capacity for automated fitness testing of vehicles

The capacity of fitness testing centers in Delhi was 4.1 lakh[42] vehicles per annum. However, automated fitness testing centers accounts for only 12 *per cent* of the total capacity. The remaining 88 *per cent* capacity is at manual testing centers.

Chart 4.4: Annual Capacity (in terms of vehicles can be tested)



Source: Information provided by DoT

Moreover, it was observed that out of a total of 1.44 lakh fitness test conducted during 2020-21, only five *per cent* (7,177 tests) were conducted at the automated VIU, Jhuljhuli. Thus, 95 *per cent* of the fitness tests were conducted at the manual testing centres, where only visual inspection of the vehicle was being done and declaring commercial vehicles as 'fit' was at discretion of the inspecting officer and prone to misuse.

Similarly, during the years 2018-19 and 2019-20, manual testing accounted for 95 and 91 *per cent* respectively of the total vehicles inspected for fitness. Deficiencies in the testing at fitness testing centres are discussed in subsequent paragraphs.

4.3.2. Shortfall in vehicles undergoing fitness tests

In terms of the Central Motor Vehicles (Fourteenth Amendment) Rules, 2018, till 1 November 2018, all commercial vehicles were to obtain fitness certificate on annual basis. From 2 November 2018, Commercial vehicles up to the age of eight years were allowed to obtain fitness certificate on biennial basis. Apart from this,

[42] As per DoT's reply (February 2020), the capacity of VIU Jhuljhuli taken as 50,000 annually or 167 per day (50,000 vehicles/300 working days). As per minutes dated 28 February 2017, the capacity of VIU Burari is 800 vehicles per day and the capacity of Auto Rickshaw Unit/Taxi Unit Burari is 300-400 vehicles per day.

validity of fitness of vehicles whose fitness expired during COVID-19 pandemic and lockdown, between 1 February 2020 and 30 September 2021, was extended till 30 September 2021.

Audit examined vehicle registration data and fitness tests data to analyse the shortfall in vehicles passed in the fitness tests, as shown in **Table 4.2**.

Table 4.2: Shortfall in vehicles undergoing fitness tests

Year	Vehicles due for Fitness Tests	Vehicles Tested			Number of vehicles not turned up for fitness tests. (*percentage of total vehicles due for testing*)
		Number of vehicles tested. (*percentage of total vehicles due for testing*)	Number of vehicle passed. (*percentage of total vehicles tested*)	Number of vehicles failed (*percentage of total vehicles tested*)	
2014-15	1,97,715	1,56,906 *(79.36)*	1,30,820 *(83.37)*	26,086 *(16.63)*	40,809 *(20.64)*
2015-16	2,16,852	1,22,211 *(56.36)*	1,04,847 *(85.79)*	17,364 *(14.21)*	94,641 *(43.64)*
2016-17	2,39,898	1,67,892 *(69.98)*	1,59,483 *(94.99)*	8,409 *(5.01)*	72,006 *(30.02)*
2017-18	2,84,444	1,89,815 *(66.73)*	1,81,060 *(95.39)*	8,755 *(4.61)*	94,629 *(33.27)*
2018-19	3,13,828	1,10,463 *(35.20)*	1,03,238 *(93.46)*	7,225 *(6.54)*	2,03,365 *(64.80)*

Source: Parivahan data

It can be seen that during 2014-15 to 2018-19[43], there was steep increase in percentage of vehicles not even turning up for fitness tests. In the year 2018-19, as much as 64 *per cent* of the vehicles due for fitness tests did not turn up for the tests. Out of the vehicles that turned up for tests, percentage of vehicles failing the tests had reduced from 17 *per cent* in 2014-15 to less than 7 *per cent* in 2018-19. Low failure rates may convey improvement in general maintenance of vehicles; however, it needs to be seen together with the fact that almost 2/3rd of vehicles were not turning up for tests at all.

Despite the huge shortfall in fitness testing, DoT did not devise any system to remind the vehicle owners for renewal of vehicle fitness certificate. The issue of vehicles plying without valid certificate of fitness was also pointed out in Para No.1.4.3 of the CAG's Report for the year ended 31 March 2014.

Box 4.1.: Fitness testing of Gramin Sewa Vehicles (GSVs)

During 2015-16 to 2018-19, percentage of GSVs turning up for annual fitness tests remained in the range of only 34 to 48 *per cent*. Further, 956 GSVs never obtained a fitness certificate during period of 2014-15 to 2018-19. During 2019-20 and 2020-21, 47 *per cent* and 32 *per cent* GSVs respectively had valid fitness certificates. However, the unfit and polluting GSVs continued to ply on Delhi roads.

[43] Vehicles due for fitness test on yearly basis till 1.11.2018.

DoT replied (October 2021) that the lapses/irregularities pointed out shall be examined in detail.

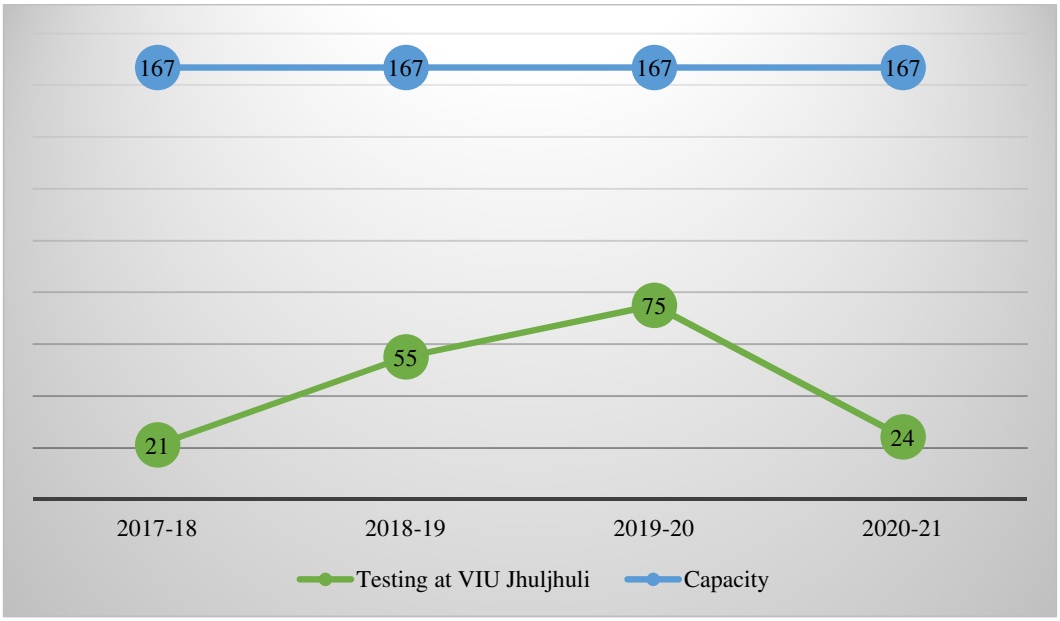
4.3.3. Lapses in functioning of Vehicle Inspection Unit Jhuljhuli

4.3.3.1. Under-utilisation of capacity at the only automated VIU in Delhi

VIU Jhuljhuli started functioning from September 2017. The capacity of VIU Jhuljhuli was 167 vehicles per day (50000 vehicles/300 days).

Audit, however, observed that, VIU Jhuljhuli tested only 21 vehicles per day on an average during October 2017 to March 2018. The daily average tests increased to 56 vehicles in 2018-19 and 75 vehicles in 2019-20 but again reduced to 24 vehicles in 2020-21.

Chart 4.5: Under-utilisation of capacity at VIU, Jhuljhuli



Source: Information provided by DoT and Vahan Dashboard

Thus, the capacity at VIU Jhuljhuli, i.e., the only automated fitness testing centre in Delhi, was grossly under-utilised. This may be due to the fact that vehicle owners had option to get their vehicles tested at either VIU Burari or VIU Jhuljhuli and the fail rate during 2018-19 was 32.47 *per cent* at VIU Jhuljhuli against a mere 6.80 *per cent* at VIU Burari and manual testing was based on visual inspection which was prone to misuse.

DoT informed (October 2021) it has issued instructions for mandating fitness checking of vehicles at automated VIUs only. No supporting document was furnished in support of their reply.

On verification (November 2021) on VAHAN dashboard it was found that out of 22,385 fitness certificate issued during October 2021 only 1,449 (6.47 *per cent*) were issued at VIU Jhuljhuli.

4.3.3.2. Discrepancies in the tests conducted

The Operations and Maintenance agency for the automated VIU Jhuljhuli was M/s Rosemerta Technologies Ltd. Audit analysed the data maintained by M/s Rosemerta relating to vehicles inspected at the automated VIU Jhuljhuli.

As per this database, 38,807 vehicles were inspected at VIU Jhuljhuli during 8 September 2017 to 21 March 2020. The fuel-wise classification of vehicles inspected at the VIU Jhuljhuli is shown in **Table 4.3**.

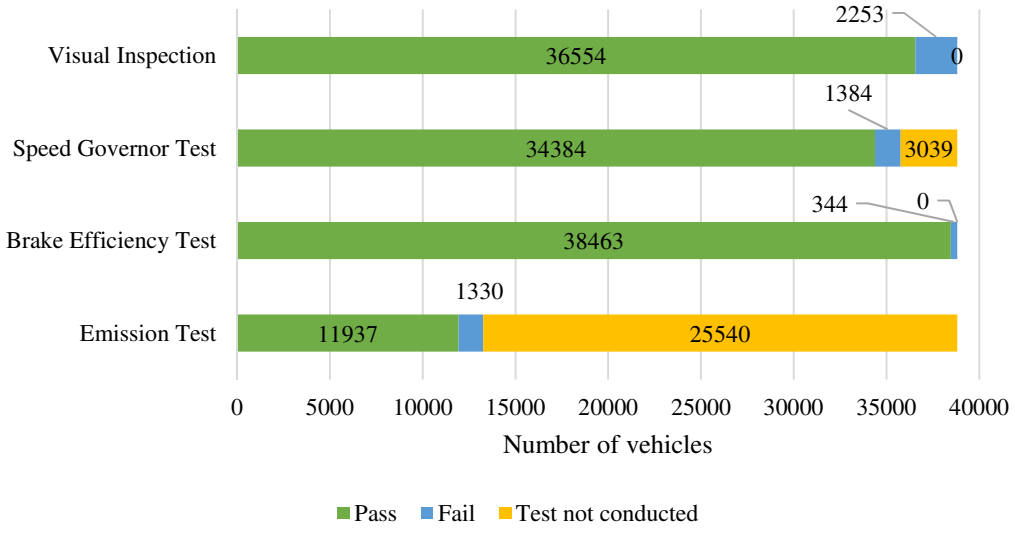
Table 4.3: Details of Vehicles tested at VIU Jhuljhuli

Fuel category of vehicles tested	Number of vehicles tested at VIU Jhuljhuli during September 2017 to March 2020		
	Passed	Failed	Total
Petrol	413	109	522
Diesel	16124	2039	18163
CNG	17643	2479	20122
Total	**34180**	**4627**	**38807**

Source: Information provided by DoT

There were four categories of inspection viz. Emission Test, Service Break efficiency, Speed Governor Test, Visual Inspection. If the vehicle failed in any of the four categories, the Vehicle was declared as failed in the inspection.

Chart 4.6: Tests conducted at VIU Jhuljhuli during September 2017 to March 2020



Audit observed:

- 1078 vehicles failed in fitness tests during 8 September 2017 to 7 February 2019, due to failure in Emission Test. These vehicles did not appear for re-test. However, DoT's database indicated that 1068 of these vehicles were re-tested and issued fitness certificates at VIU Jhuljhuli itself. It is suspected that DoT issued fitness certificates to these 1068 vehicles,

without actually subjecting these vehicles to a re-test. Government may investigate these cases and plug the loopholes so that such cases do not recur.

- Out of 38,807 vehicles inspected at VIU Jhuljhuli, 25,540 vehicles were not even put to Emission Test. However, 23,431 of these 25,540 vehicles were declared 'Pass' and issued Fitness Certificate. Audit further observed that out of these reportedly 'passed' vehicles, 45 *per cent* were Diesel run vehicles which contribute to significant share of emissions.
- Audit observed 25 cases where the vehicle was issued Fitness Certificate without conducting the Emission Test, despite the fact that the same vehicle had failed the Emission Test in its previous visit within three months. Vehicles which fail emission tests should be inspected thoroughly during the re-tests. Hence, issuing fitness certificate to vehicles which failed emission tests earlier without conducting emission tests, was a serious lapse.
- Analysis of database further revealed that there were 552 cases where the vehicles were passed in all the four test categories, however, the vehicle was shown as failed in overall fitness check for providing fitness certificate.

Thus, providing fitness certificate to 60 *per cent* of the inspected vehicles without putting these vehicles to emission tests rendered the automated facilities irrelevant and puts a question mark on reliability of its testing system. Emission tests which were mandatory were not conducted even for the vehicles which failed emission tests in their previous tests. Apart from this, the instances of vehicles being issued fitness certificate without appearing on automated centre's system indicates fraudulent practices, which merits detailed investigation. Based on detailed investigation, accountability may be fixed and appropriate deterrent mechanism may be put in place. Further, failing vehicles in fitness test despite passing in all four tests casts doubt on the reliability of the system.

DoT replied (October 2021) that the lapses/irregularities pointed out shall be examined in detail.

4.3.3.3. Tests not conducted as per the CMVR, 1989– VIU Jhuljhuli

Pass and fail of the vehicle in fitness tests should be based strictly as per provisions of Rule 62 of Central Motor Vehicle Rules, 1989 (CMVR) **(Annexure-IV)**. The measured value of each test was to be provided to the vehicle owner in the test report along with permissible range.

Fitness test is combination of visual check and equipment based testing. Besides, MoRTH had issued (April 2018) guidelines for setting up of automated Inspection and Certification Center prescribing five CMVR items, viz. service brakes, parking brakes, speedometer, headlight specifically to be tested with automated equipment and emission inspection through opacity meter and 4 gas analyzer besides visual inspection. At VIU Jhuljhuli, the test results were shown under three categories, viz. mandatory, visual and advisory.

Under mandatory category, service brake test was done regularly whereas headlamp beam test and emission test were not done on regular basis. The remaining two tests, viz. speedometer and parking brakes were done as advisory tests.

The other prescribed CVMR items to be checked, were either not checked[44], or relied upon on the basis of self-declaration[45] given by the vehicle owners or done as 'Advisory' tests[46].Thus, fitness tests were not conducted as per CMVR at VIU Jhuljhuli.

The reply of Government was awaited (December 2021).

4.3.4. Lapses in functioning of VIU Burari

4.3.4.1. Capacity of VIU Burari

VIU Burari caters to more than 90 *per cent* of fitness tests conducted by GNCTD. Against the capacity of 800 vehicles per day at VIU Burari, the working capacity (February 2020) was 100-140 vehicles per day per inspector, which translated to maximum capacity of 420[47] vehicles per day. Thus, testing of 100-140 vehicles per day by one Inspector translates to continuous testing for eight hours at less than five minutes per vehicle.

Thus, VIU Burari, which was reliant solely on visual inspection of the vehicles by Inspectors, with just three inspectors on its payroll was marred with shortage of Inspectors as well. As a result, vehicles were issued fitness certificates on the basis of visual inspection for even less than five minutes.

This raises doubts about reliability of testing systems at VIU Burari.

DoT informed (October 2021), it has issued instructions for mandating fitness checking of vehicles at automated VIU only.

4.3.4.2. Tests not conducted as per the CMVR, 1989-VIU Burari

During scrutiny of the records and physical inspection of VIU Burari, Audit observed the following:

i. Only visual inspection was performed along with checking of online documents[48] for issuing the fitness certificate of commercial vehicles. No other tests as required by CMVR were conducted at VIU Burari.

ii. About two to three minutes were spent on the visual inspection of each vehicle. Besides checking the outward appearance/condition of the vehicle,

---

44 Sparkplug/suppressor cap/high tension cable, other lights, silencer and dashboard equipment.

45 Reflectors, bulbs, rear view minor, safety glass, windshield wiper, steering gear, rear under run protecting device and lateral side protection device.

46 Horn tests.

47 Three Inspectors available at VIU Burari.

48 Copies of updated quarterly CNG logbook, road tax clearance, permit, PUC certificate, valid AMC of speed governor, registration certificate and fitness fee.

the driver of vehicle was asked to switch on the parking lights, head light and indicators and blow horn. Checking of gear box, foot brake, parking brakes/emergency brakes, radiator, steering, suspension and CNG cylinder/leakage was done on the basis of 'application cum direction[49]' letter submitted by the applicants. Besides, checking of dashboard and speedometer were not even part of 'application cum direction letter'.

iii. It was further observed that VIU did not conduct checking of effectiveness of speed governors. Instead, complete dependency was on the certificate of speed governor issued by the vehicle/speed governor manufacturers. As no dedicated track/facility for checking the effectiveness of speed governors installed in vehicles was available at VIU, the speed governors were checked on random basis by using 'Jack' on a single tyre in stationary position of vehicle, which is neither scientific nor a safe method for checking vehicle.

iv. No system was put in place for issuing gate pass/entry details of vehicles visiting VIU for inspection, in the absence of which it could not be verified as to how many vehicles were actually checked for issuing the fitness renewal certificate.

Thus, vehicles were being put to only visual inspection and none of the other key tests were being conducted at VIU Burari. This rendered the fitness testing irrelevant, almost perfunctory at VIU Burari.

DoT replied (November 2021) that 100 *per cent* inspection was carried out as per provisions of CMVR and other tests and vehicles were declared pass or fail on merits.

The reply is general in nature and does not address the specific issues raised by Audit in the report, based on inspection.

As regards system for recording details of vehicles visiting VIU for inspection, DoT stated that entrance gate is under construction for systematic entry of vehicles.

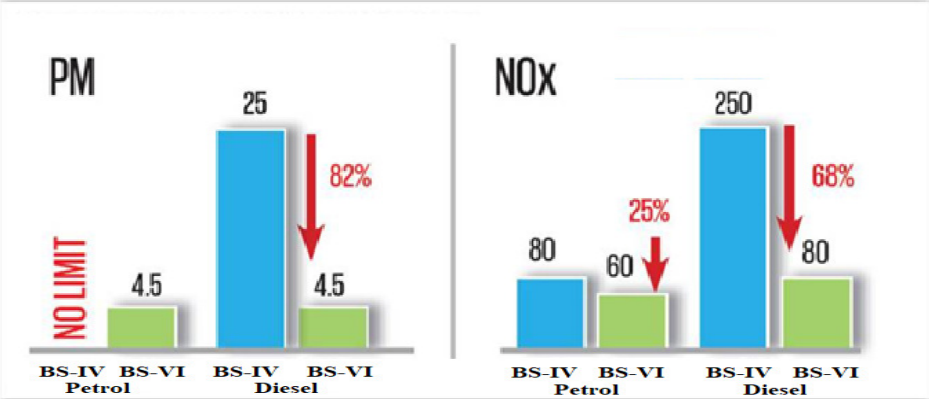
4.4. Retro fitment of old Diesel vehicles (BS-IV) to reduce emission

Diesel engines emit significant amounts of particulate matter (PM) and oxides of nitrogen (NOx) into the atmosphere, which causes adverse health problems. BS-VI norms implemented from April 2020 introduced significant reduction in permissible emission from diesel-operated vehicles as shown in **Chart 4.7**.

To meet BS-VI standards, the BS-IV engines need a DPF (Diesel Particulate Filter) and NOx treatment.

[49] Application submitted by the owner of the vehicle for fitness test.

Chart 4.7: Comparison between BS-IV and BS-VI emission norms



Though BS-VI norms were introduced from April 2020, earlier models of diesel vehicles based on BS-IV norms will still be plying in NCT of Delhi till March 2030. As of March 2020,[50] there were about 4.64 lakh diesel vehicles registered in Delhi which are based on BS-IV or earlier standards.

Viable retrofitted emission control technologies exist to reduce exhaust emission from these pre-BS-VI diesel vehicles as well. Diesel retrofit technologies[51] have demonstrated their ability to significantly reduce unwanted emission at reasonable cost without jeopardizing vehicle performance.

A Comprehensive Study on Air Pollution and Green House Gases (GHGs) in Delhi conducted by IIT Kanpur suggested (2016) Retro-fitment of Diesel Particulate Filter (DPF) in older diesel vehicles as these filters have PM emission reduction efficiency of 60-90 *per cent*. The study emphasized that if the diesel vehicles entering in the city are equipped with DPF, there will be reduction of 40 *per cent* emission and this reduction in emission will reduce the ambient air concentration by 10 µg/m3.

Audit noted that CPCB issued (December 2015) statutory directions to take steps for mandatory Retrofitting of Diesel vehicles with Diesel Particulate Filters in diesel vehicles. Thereafter, DoT approached (February 2017) the MoRTH with the request to make necessary provision in the Motor Vehicle Act and Rules in this regard.

Audit observed that in pursuance of DoT's request, neither the Central Motor Vehicle Rules were amended nor any reply was sent to GNCTD. Further, no diesel particulate filter was approved by any agency mentioned under Rule 126 of CMVR 1989.

---

50 From April 2020 only BS-VI vehicles were to be registered.

51 The Document on Retrofitting Emission Controls for Diesel-Powered Vehicles published by the Manufacturers of Emission Controls Association (MESA), Washington DC in November 2014 concluded that diesel oxidation catalysts, diesel particulate filters, exhaust gas recirculation, lean NOx catalysts, lean NOx traps, selective catalytic reduction, and crankcase emission control, have been successfully retrofitted on 'on-road' and 'off-road' vehicles. These technologies offer opportunities to reduce large amounts of particulate and NOx emission and other pollutants as well, including toxic HCs.

In the absence of any action after the request to MoRTH, suggestions provided by IIT Kanpur and endorsed by DPCC/CPCB for retrofitting the Diesel Particulate Filter in Diesel Vehicles to mitigate vehicular air pollution in Delhi remained un-implemented despite lapse of more than four years.

DoE stated (October/November 2021) that necessary follow-up with the agencies concerned shall be done, whereas DoT informed (November 2021) that a meeting was held by the Commissioner (Transport) with Automotive Research Association of India (ARAI) regarding retro fitment of older vehicles with DPF and electric kits.

4.5. Irregular registration of BS-III and BS-IV vehicles

With a view to mitigate vehicular emission, the Supreme Court of India had ordered (March 2017) that BS-III compliant vehicles sold after 31 March 2017 should not be permitted to be registered by the State Transport Authorities, and further ordered (October 2018) that no motor vehicle conforming to emission standard Bharat Stage-IV shall be sold or registered in the entire country with effect from 1 April 2020.

Audit, however, observed that DoT registered 382 new (sold after 31 March 2017) BS-III compliant vehicles during 1 April 2017 to 31 March 2019. Similarly, it registered 1672 BS-IV compliant vehicles on 29 April 2020 and 30 April 2020 which were purchased during 2 January 2020 to 20 April 2020.

Thus, 2,054 vehicles were registered in Delhi beyond the deadline prescribed by the Supreme Court. Not complying with Supreme Court's orders by DoT, besides having the risk of contempt of court, may also lead to rescinding the efforts made to mitigate vehicular air pollution in Delhi.

DoT stated (September 2021) that it might have registered these BS-III vehicles during 1 April 2017 to 31 March 2019 in accordance to Delhi High Court's Order of 8 May 2017 which states that for exemption, sale of vehicle had to be completed before 31 March 2017 and/or issuance of an online insurance policy in favour of purchaser on or before 31 March 2017. The Department's contention is not acceptable as Audit has considered only those BS-III vehicles which were shown as purchased during 1 April 2017 to 16 October 2018.

With regard to registration of BS-IV vehicles beyond 31 March 2020, DoT stated that it registered BS-IV vehicles in accordance to the decision taken by Minister (Transport) for vehicles sold up to 26 March 2020 details of which were provided to the Supreme Court during the course of hearing on 27 March 2020. Audit noted that the Supreme Court, vide its order dated 8 July 2020 directed to make verification regarding genuineness of transactions done during lockdown period to ascertain that vehicle were actually put on the E-Vahan portal of the Government and that they were not back dated. However, the Department has not furnished any compliance report filed by it in the Supreme Court and the decision taken by the

Apex court, in the absence of which Audit is not in a position to ascertain the genuineness of DoT's claim.

DoT stated (November 2021) that matter is being looked into.

4.6. Deregistration, impounding and scrapping of ELVs

As per the directions[52] of the National Green Tribunal (NGT), petrol vehicles more than 15 years old and diesel vehicles more than ten years old are not permitted to ply on roads in Delhi and were required to be deregistered and impounded. Subsequently, Supreme Court directed (29 October 2018) DoT, GNCTD to immediately ban all diesel vehicles more than 10 years old and petrol vehicles 15 years old. These vehicles are termed as 'End of Life Vehicles' (ELVs). In compliance to Supreme court direction, DoT issued the order on 30 October 2018.

Audit examined the adequacy and effectiveness of steps taken by GNCTD in this regard and observed the following.

4.6.1. Negligible deregistration of ELVs

The details regarding deregistration of ELVs in Delhi is given in **Table 4.4**.

Table 4.4: Poor progress in deregistration of ELVs

(Figures in Lakhs)

Year	ELVs with Active Registration at the beginning of the year	ELVs deregistered during the year	*Percentage* of ELV deregistered to total ELVs at the beginning of year
2018-19	36.11	2.26	0.06
2019-20	38.69	0.50	0.01
2020-21	41.55	0.22	0.01

Source: VAHAN database

Audit observed that out of 47.51 lakh ELVs required to be deregistered during the years 2018-19 to 2020-21, GNCTD had deregistered only 2.98 lakh ELVs constituting only a small fraction (6.27 *per cent*) of the ELVs, and majority 93.73 *per cent* (44.53 lakh) of the ELVs had 'active' registration status as of March 2021. This indicated that these ELVs were still plying on Delhi roads.

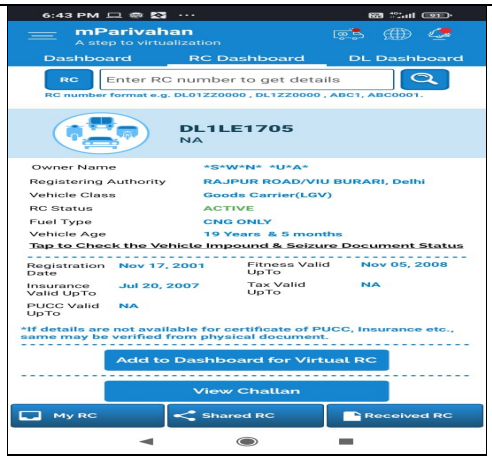
The Supreme Court also directed (October 2018) to put the list of all ELVs (Petrol and Diesel vehicles) on the website of DoT. In its compliance, list of ELVs was uploaded once on DoT's website in October 2018. However, the list has not been updated since then (as of August 2021).

It was also observed that DoT itself issued challans to ELVs (November 2018 to October 2020) for various offences (visible smoke, overloading, absence of Pollution checking and fitness certificates, etc.). These challans make it abundantly clear that the ELVs were actually plying on Delhi roads and with impunity as DoT itself did not take action to impound the vehicle even after intercepting them.

[52] 26 November 2014, 7 April 2015, 20 July 2016 and 18 December 2017.

Audit also cross-checked the details of few old and derelict vehicles seen on roads and observed several instances of ELVs plying on roads. Few illustrative pictures are given in **Picture 4.1**.

Picture 4.1: ELVs plying on road

<table>
<tr>
<td>  </td>
<td> 
</td>
</tr>
<tr>
<td colspan="2">Vehicle no. DL1LE1705 seen on road (plying) verified as ELV on mParivahan portal</td>
</tr>
<tr>
<td>  </td>
<td> 
</td>
</tr>
<tr>
<td colspan="2">Vehicle no. DL1C7045 seen on road (parked) verified as ELV on mParivahan portal</td>
</tr>
</table>

Further, audit analysis of vehicle registration data provided by DoT revealed that validity of registration and fitness of diesel vehicles was still being shown to be 15 years instead of 10 years. This makes it difficult for enforcement agencies to keep track of diesel vehicles crossing the permissible age of 10 years as of April 2021.

Thus, Government did not take adequate steps to deregister ELVs, resulting in plying of ELVs on Delhi roads and contributing to adverse air quality.

DoT stated (September 2021) that it advised ELV owners not to ply these vehicles on Delhi /NCR roads and get these vehicles scrapped through authorized scrappers. From 2018-19, deregistration of diesel vehicle was being done online and data updated on Vahan database. Further, as on 10 September 2021 total 3.06 lakh ELVs

have been deregistered by DoT. It further stated that deregistration of vehicle does not ensure stopping of plying of these vehicles on Delhi roads.

Fact remains that as on 1 April 2021 more than 44 lakh ELVs were yet to be deregistered by DoT and helplessness of DoT to stop these ELVs plying on Delhi roads and continuing to pollute ambient air, is a cause of concern.

4.6.2. Impounding and scrapping of ELVs

NGT's directions (November 2014, April 2015 and December 2017) prohibited plying or parking of ELVs on Delhi roads and required seizure of such vehicles by the enforcement agencies in case of violations. To enable proper disposal of large number of vehicles found abandoned or ELVs seized, DoT formulated (August 2018) guidelines 'Scrapping of Motor Vehicles in Delhi-2018' to offer an authorized place to get these vehicles scrapped. In this regard, Audit observed the following.

4.6.2.1. Not scrapping of impounded ELVs

A total of four scrappers were authorized[53] to scrap ELVs in Delhi as of March 2021. Audit observed that from the date of framing of scrapping guidelines (August 2018), only 347 ELVs were impounded in Delhi up to 30 September 2020.

Further, out of 347 ELVs impounded by DoT, only five vehicles were handed over to the scrappers by DoT as of September 2020. DoT informed (July 2021) that no vehicle was scrapped till March 2021 and process for handing over impounded vehicles was under process.

DoT stated (September 2021) that vehicles impounded by DoT will be scrapped after completion of prescribed process.

4.6.2.2. Inadequate capacity of impounding pits

Considering the vast number of ELVs required to be deregistered as per NGT orders, impounding pits need to have adequate space to keep the seized vehicles. Audit observed that there were only three impounding pits in Delhi, with a capacity to park only 4,000 vehicles which seems negligible when compared to more than 41 lakh ELVs, which are required to be impounded and scrapped.

DoT stated (October 2021) that it has decided to send the impounded vehicles directly to scrappers now.

4.6.2.3. Lack of monitoring of authorised scrappers

Audit noted that as per scrapping guidelines, the authorized scrappers were required to submit monthly reports and annual reports to DoT containing details of vehicles scrapped. However, DoT did not make available copies of monthly and annual reports received from the authorized scrappers to Audit.

---

[53] Licenses issued on 21 December 2018, 11 February 2020, 27 May 2020 and 02 July 2020 valid for 5 years.

DoT stated (September 2021) that it was receiving yearly report from authorized scrappers and during 2018-21, total 2628 vehicles have been scrapped. DoT however, again failed to provide the copies of annual reports submitted by scrappers in support of its contention.

4.6.2.4. Lack of coordination between various enforcement agencies

As per Delhi Maintenance and Management of Parking Places Rules 2019, various agencies viz. DoT, Delhi Traffic Police, Municipal Corporations, NDMC and Cantonment Board were to impound any ELV found operational or parked in a public place or discarded as junk. Audit, however, observed that no coordination mechanism amongst various enforcement agencies for impounding of ELVs, was in place in DoT. Due to lack of any coordination among various enforcement agencies, DoT did not have the details of ELVs impounded by other agencies and as such there was no mechanism in DoT to ensure that all the impounded ELVs are handed over to authorized scrappers.

Thus, the initiatives of GNCTD to impound ELVs and get them scrapped were insufficient and ineffective.

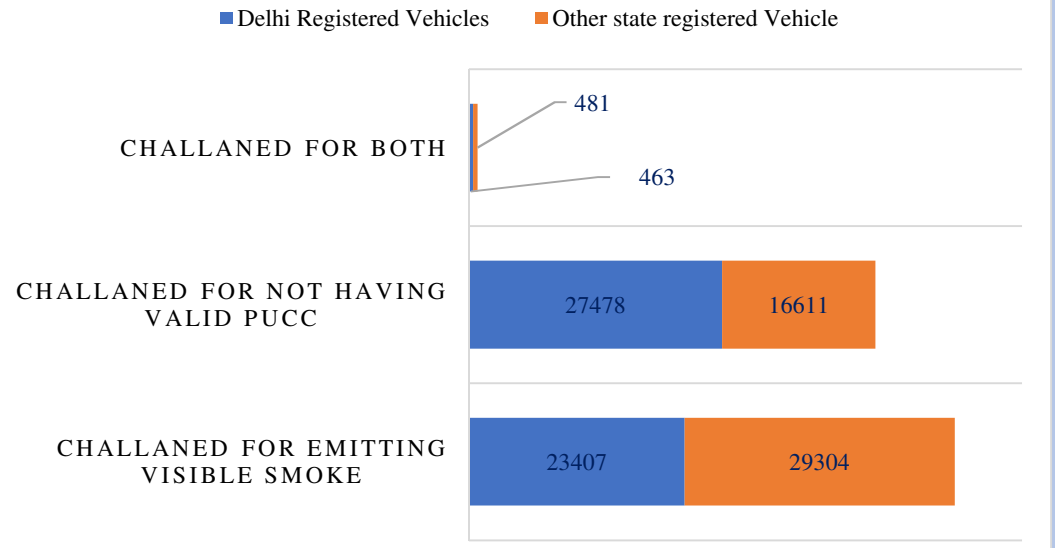
DoT stated (October/November 2021) that periodical meetings are now being held with Traffic Police for impounding of ELVs and a decision has been taken to directly send the impounded vehicles to scrappers now.

4.7. Functioning of Enforcement Branch, DoT

Enforcement Branch of DoT is responsible for deployment of teams in the field for prosecution of vehicles violating the provisions of the Motor Vehicles Act and Rules framed thereunder.

Audit noted that Department neither had the category-wise details of the number of vehicles entering Delhi from neighboring NCR towns and other parts of the country nor it monitored emission of such vehicles. During November 2018 to October 2020, DoT issued 52,711 challans for emitting visible smoke and 44,089 challans for not carrying a valid PUCC. The details are given in **Chart 4.8**.

CHART 4.8: CHALLANS ISSUED TO VEHICLES REGISTERED IN DELHI AND OUTSIDE DELHI



Source: Information provided by DoT

It may be seen that other states registered vehicles constituted 47 *per* cent of challans for PUC norms violation. Since vehicles registered outside Delhi accounted significant proportion of challans, stricter enforcement and checking on roads is required to enforce plying of only pollution norms compliant vehicles on Delhi roads.

It is imperative for the Department to identify and maintain a database of places which cater to heavy traffic inflow from outside Delhi or are more prone to violation w.r.t. pollution, overload, visible pollution, etc., to strategize its action plan to control vehicular pollution from outstation vehicles by rationally deploying its enforcement teams. The Department should also establish PCCs at such points to issue certificate to pollution compliant vehicles and address issue of non compliant ones.

Despite the fact that all PCCs are networked wherein all the test values and results are recorded in a central database, Government did not exploit this to arrive at meaningful patterns, insights and actionable items. Such tool could also give an idea about actual pollution performance of different genres of vehicles under prevailing emission norms. Department had no mechanism to analyze actual emission data from PUC testing reports to check the actual pollution performance of different kinds of vehicles on roads and compare them with PUC norms. Thus, it was completely dependent on traditional modes of enforcement, i.e., interception of vehicles on roads by the Enforcement teams.

DoT stated (September 2021) that as per reports, more than six lakh vehicles enter in Delhi from other States for which enforcement teams are deployed at borders and in the city in three shifts. The reply of the Department reiterates Audit

apprehension about DoT not maintaining category-wise details of the number of vehicles entering Delhi from NCR for monitoring their emissions.

4.7.1. Inadequate manpower in Enforcement Branch

The Enforcement Branch was working with 292 personnel against a sanctioned strength of 819 as of January 2021. Moreover, the sanctioned strength of 819 was fixed in year 2008, when the number of registered vehicles in Delhi was around 51 lakhs, *vis-à-vis* around 130 lakh vehicles registered as on March 2021. Despite acute shortage of staff, 43 personnel of the Enforcement Branch, including 6 inspectors, 9 sub-inspectors, 13 Assistant Sub-Inspectors and 15 Head Constables have been deployed to other branches/wings of DoT. Thus, enforcement wing had a significant shortage of manpower.

DoT had assessed (January 2020) requirement of 1134 additional posts, to be able to deploy enforcement teams at 25 major entry points and 33 locations within Delhi, round the clock. DoT stated (September 2021) the matter to be under process.

While admitting that there was shortage of man power in enforcement branch, DoT replied (November 2021) that 56 teams had been deployed at various parts of Delhi.

4.7.2. Inadequate coverage of entry points in Delhi

There are 128 entry points from where vehicles can enter into Delhi. Out of these 80 *per cent* of the commercial vehicles enter Delhi from 13 entry points. Audit, however, observed that enforcement teams were being deployed at only seven entry points.

Besides shortage of staff, the Enforcement teams did not have vehicles mounted PUC equipment to check visible polluting vehicles. This resulted in inadequate coverage of entry points of Delhi, ultimately indicating a weak enforcement regime. In absence of input data regarding location-wise vehicular load, deployment of the few ill-equipped enforcement teams was also bound to be sub-optimal.

The reply of Government was awaited (December 2021).

4.8. Conclusion

Regarding the emission testing of motor vehicles, Pollution Checking Centres were issuing unrealistically high number of certificates with reference to time consumed for checking the emission rendering the PUC checking of vehicles doubtful. Vehicles were issued PUCC, though these were not meeting the emission norms. There were also cases where emission values were not recorded in the database. In the absence of linkage between emission data and VAHAN database as directed by the Supreme Court, PCCs were still permitted to manually select the BS emission standard category for vehicles, leaving scope for manipulation to increase the permissible range or validity of the PUCC.

There was also no mechanism in place to co-relate the number of vehicles registered in Delhi with the number of PUCCs issued. A comparison between the number of vehicles registered and number of PUC tests conducted revealed that vehicles are turning up for testing much less regularly than they should be. DoT had also not authorised any mechanism for calibration of the PUC equipment and efficient working of PCCs or to inspect the testing equipment at the PCCs which issued PUCCs to vehicles challanned for emitting visible smoke.

Modern technology for checking vehicular pollution through Remote Sensing Devices was also not adopted though the same was under consideration from the year 2009 and Supreme Court emphasized the same time and again.

Proper maintenance of vehicles would ensure that the emission is within the prescribed norms and stringent fitness tests would ensure proper maintenance of vehicles. During 2018-19 to 2020-21, the only automated Vehicle Inspection Unit at Jhuljhuli was grossly underutilized as 91 to 95 *per cent* of the fitness tests were conducted at the manual testing centre at VIU, Burari. The credibility of VIU Burari was suspect as only visual inspection was being done there, while inspections carried out at VIU, Jhuljhuli also lacked credibility as there were cases where the vehicles were passed without putting to Emission Test and/or other fitness tests.

In spite of heavy shortfall in number of vehicles turning up for fitness tests during 2014-15 to 2018-19, ranging from about 20 *per cent* to 64 *per cent*, DoT had not devised any system to remind the vehicle owners for renewal of vehicle fitness certificate.

Viable retrofitted emission control technologies exist to reduce exhaust emission from pre-BS-VI diesel vehicles as well. CPCB issued statutory directions to take steps for mandatory retrofitting of Diesel vehicles with Diesel Particulate Filters. Though DoT approached (February 2017) the MoRTH, GoI for making necessary provision in the Motor Vehicle Act and Rules in this regard and pursued for it, the same was not finalised.

Instances of registration of older vehicles beyond the deadline prescribed by Supreme Court were also observed. These cases merit examination by DoT.

In spite of directions from National Green Tribunal (NGT) in this regard, only 6.27 *per cent* of vehicles which have completed their life were deregistered during 2018-21. Moreover, only 357 vehicles were impounded even though there were more than 41 lakh ELVs in Delhi. There were instances where challans were issued to these ELVs for visible pollution but still these were not impounded. There was lack of space to keep impounded vehicles. Hence, action taken by Government to manage ELVs was inadequate and ineffective.

Emission of vehicles entering Delhi from neighboring NCR towns and other parts of the country were not monitored as enforcement teams were being deployed at only seven out of total 128 entry points. Enforcement Branch was working with a

strength of only 292 personnel as against an assessed total requirement (January 2020) of 1134.

4.9. Recommendations

Recommendation #8: Government should ensure adequate PCCs are available for general public on priority and they are evenly distributed as per Vehicle – PCC ratio. Government may devise a mechanism to issue automated reminders / e-challans to vehicles not obtaining a PUCC by due date, while incentivizing compliance. Strategy for obtaining PUCC for different category of vehicles should be based on scientific analysis of vehicular emission load.

Recommendation #9: Government needs to establish a mechanism to ensure regular calibration and efficiency of equipment at PCCs.

Recommendation #10: Government need to provide linkage between emission data and VAHAN data base so that there is no room for manipulation in selection of a particular Bharat Stage category.

Recommendation #11: Government may consider checking of vehicular pollution through remote sensing devices in view of the severe shortage of enforcement personnel.

Recommendation #12: Government may take adequate steps to increase coverage of fitness tests of vehicles at automated testing centers to ensure strict adherence to prescribed norms.

Recommendation #13: Government may take steps to make retrofitting of diesel vehicles with diesel particulate filters mandatory to reduce emission.

Recommendation #14: GNCTD should fix responsibility and put appropriate deterrent mechanism where instances of vehicle caught for visible pollution have been found inspite of having PUC certificate or where failed vehicles in fitness testing have been issued PUC certificate.

Recommendation #15: Regular check of PCCs needs to be carried out by the Government.